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Commission Discards Revised Freight Rates

Proposed Revision of Rates On Paper and Its Products By Railroads Rejected By Interstate Commerce Commission — Wisconsin Allots $93,381 For Forest Fire Service — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 9, 1940—Revised freight rates on paper and paper products to the Southwest, adversely affecting Wisconsin mills, have been discarded by the Interstate Commerce Commission, according to copies of a decision issued last week at Washington, D. C.

The revisions were proposed by the railroads, and while they embraced both increases and reductions, the commission found that increases predominated. On the grounds that the revisions were not justified, the rates were ordered cancelled.

When the schedules were filed, they were vigorously opposed by Wisconsin and Minnesota mills, because of the disadvantages to which they would be subjected in competition with other mills. Tissue manufacturers were especially gratified, since their products would have been subjected to increases of as much as 21 cents per 100 pounds on deliveries to the southwestern states.

Wisconsin railroads took no part in the case, which has been pending since 1938.

Fire in Chip Bin at Northern Mills

Fire in a chip bin of the Northern Paper Mills, Green Bay, Wis., the afternoon of December 2 caused a loss of approximately $8,000. Spontaneous combustion was the cause. The fire was of a smouldering nature and kept the Green Bay fire department on the job for eighteen hours before it was extinguished. The blaze was marked by frequent explosions of vapor distilled from the chips, but at no time was it threatening to the remainder of the property. As a result of long vigilance, Frank J. Timmerman, mill manager, was taken to St. Mary's hospital at Green Bay at 3:30 the following morning, suffering from nervous shock. He suffered no injuries, however.

Wisconsin Allotts $93,381 for Fire Fighting

Wisconsin has been allotted $93,381 by the United States Forest Service under the federal-state program established under the Clarke-McNary Act to help meet forest fire fighting costs for the 1941 fiscal year. The state is required to spend at least an equal amount of its own or contributed private funds for fire prevention on state and private lands.

Forest officials announced that 2,064 forest fires occurred on state and private protected lands in 1939, compared with 973 in 1938. They resulted in 9,944 acres of protected areas being burned over, as against 8,830 the previous year. The total area under fire protection is 13,604,610 acres, and fire damage totalled $22,291. Of last year's fires, 1,847 were mancaused, 674 of them by careless smokers.

In a report issued last week, William J. P. Albert of Madison, Wis., a member of the Wisconsin Conservation Commission, announced that 5,000,000 acres of Wisconsin land are being regrown with good timber. "If we keep up at the rate we are going," he said, "by 1960 our northern counties will be able to supply all the pulp wood our state's paper industry needs. That is not a guess. It is based upon actual figures."

In Wood County, where extensive reforestation is carried on, including the private forest of the Nekoosa-Edwards Paper Company, the county is arranging to plant forests next year on 700 acres of land it owns in the vicinity of some of its institutions. The work is now being planned by Clyde T. Smith, of the Central State Forest Nursery at Wisconsin Rapids, Wis.

Tri-State Labor Convention Meets

More than 100 delegates from Wisconsin, Minnesota and Upper Michigan, representing unions of the pulp and paper industry, met at Appleton, Wis., Sunday, December 8, for their quarterly tri-state labor convention.

Each union held its individual session in the morning, and a joint meeting was held in the afternoon at Eagles hall. Alex Schoen of Green Bay, Wis., president of the Tri-State Labor Council, presided at the discussions on wages and working conditions.

The gathering concluded with a banquet in the

(Continued on page 20)

Paper Board Demand Moderate in Chicago

Market In Midwest Territory Marking Time With Prices Holding Well As Volume Seasonally Levels Off — Book and Cover Paper Sales Improved—Salesmen Set Holiday Party Date—Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 9, 1940—The Chicago paper market is simply marking time until the inventory period is over. Otherwise, there is no specific change over last week and while prices are holding extremely well despite slowness of demand, there is an undercurrent of uncertainty which can only be eliminated, it is said, by a decided upturn in demand. Sales representatives here report that mills will finish the year in an improved condition and that November production figures will be as good as those for October.

Sulphites bonds have moved rather slowly during the week with some improved tonnage reported as parts of the country are feeling the direct effect of the rearmament program. Books and covers were reported to have enjoyed a slight upturn in orders and requests for market information indicating that merchandising plans for 1941 are going ahead on a basis with general business improvement. Krafts were reported as slow while groundwoods and newsprints also provided little excitement during the week. The paper board market was said to be fairly active and visits here of British wallboard buyers added to the buoyancy of the market. Waste papers were somewhat unsteady though the higher grades indicated genuine strength.

Salesmen Set Holiday Party Date

Ben Babbitt, Brown Company, impresario chairman of the annual Christmas party sponsored by the western division of the Salesmen's Association of the Paper Industry, has set Monday, December 23, as the date for this outstanding event. The location will again be the Hotel Sherman and Ben has arranged an interesting entertainment program which includes the appearance of the always popular piano duo of Harold Pfister and Bill Kerr. The former is a sales executive of the Bradner Smith Paper Company while his team mate a well known insurance sales executive has played with Harold for so long that only real harmony results. As usual, the entertainment will be of the informal variety with Jim Coy and some of his associates providing the basis for plenty of singing—harmony and otherwise.

The Salesmen's Association, incidentally, has now lapsed back into normalcy as far as Monday noon meetings are concerned. After a banner attendance last week to help Tom Harmon and Alf Bauman celebrate their football achievements with the weekly Wailing Wall group, the salesmen will return to their regular weekly business sessions at the Hotel Sherman and to a more specific and concentrated discussion of the variety of problems confronting the selling end of the paper industry in this area.

Paper Men Reach Fund Goal

The Chicago paper trade has once again showed its ability to meet local civic requirements. The paper division of the 1940 Community Fund Drive has, as of December 5, secured over 97 per cent of the amount it was budgeted for at the outset of the drive six weeks ago. Of the $3,605,000 which Chicago was expected to raise, the paper division quota was set at $30,000. To date the amount actually in totals $29,200. Community Fund headquarters expect the less than three per cent remainder to be taken care of by next week. Fifty paper executives were on the various teams which solicited funds from manufacturers' representatives, jobbers and wholesalers in all grades of paper. Heading the division was Wesley M. Dixon of the Container Corporation of Chicago. Working with him were such well known paper representatives as Irving Bachrach, Gilbralter Paper Company; J. A. Dianis, Zellerbach Paper Company; R. A. Freeman, McIntosh Paper Company; Frank Haggerty, Jr., Hamilton Vose, Berkshire Paper Mills; J. B. Ughetti, Dwight Bros. Paper Company; K. E. Hellstrom, Messinger Paper Company; R. C. Johnson; Harold Leahy, LaSalle Paper Company; Albert Meisterheim; J. A. Palmberg, Parker, Thomas & Tucker; R. E. Jones, Hobart Paper Company; W. J. Tilden, Fine Paper Manufacturers; J. D. Swigart; W. J. Marquardt, Julius Marquardt Company and A. H. Kroeck, Kroeck Paper Box Company.

British Executive Seeks Wall Board Supply

Baldwin Raper, managing director of Treetex, Ltd., London wall board company, was in Chicago this week to obtain wall board supplies for his company. As a member of the British paper control board, Mr. Raper was also investigating the availability of other light building materials. According to Mr. Raper, since the Nazi invasion of the Scandinavian countries, the company he represents has lost its main source of wall board for which there is a great need in England, particularly for covering windows after the panes have been shattered by bombs dropping near by.

This material, Mr. Raper pointed out, is also used extensively in factories where it is placed beneath the large skylights to prevent shattered glass from falling. In some cases, furniture factories are using the material as a substitute for plywood. The English government is said to be placing some restrictions on imports of wall board inasmuch as it is not considered as an absolute war necessity. Import restrictions have been necessitated, the English executive pointed out, because of the difficulty of maintaining balances in the United States and the need for reserving vessel space for shipments of armaments. While in Chicago Mr. Raper conferred with local officials of building material companies.

Irving McHenry Elected Director

Irving McHenry, well known Chicago executive of the Mid States Gummed Paper Company, was elected a director of the Gummed Industries Association at its convention held in Cleveland late last

month. Mr. McHenry, widely versed in both the manufacture and distribution of gummed papers, has played an important part in the increased uses for gummed papers in this country. He will prove an excellent executive in the program of the Association.

Lift Ban On Paper Carton Sales

The Chicago courts this week granted a permanent injunction restraining the Chicago board of health from interfering with the sale of milk in paper cartons. The injunction was in favor of the Dean Milk Company whose subsidiary, Fieldcrest Dairies, has already been using the paper cartons with a great deal of success. The paper carton is proving very popular in the Chicago area as recent surveys taken by the press have clearly indicated.

Further Sale Tax Suits Filed

Members of the paper industry operating in Illinois will be interested to know that additional suits have been filed in the Sangamon county courts to test the legality of Revised Article 5. This article, issued by the Department of Finance in conjunction with sales tax collections, is patterned after the Supreme Court decision in the Berwind-White case and is designed to collect the 3 per cent sales tax on all sales transacted at retail in this State despite the source of the merchandise.

Request Paper Material for Museum

Dard Hunter, curator Dard Hunter Paper Museum of the Massachusetts Institute of Technology writes as follows:—

"The Paper Museum of Massachusetts Institute of Technology has been established almost two years and during this period we have had thousands of visitors. Considerable interest in paper has been created.

"We are constantly endeavoring to procure additional material not only for exhibition in the Museum, but also for reserve. We are wondering if you would give us a little space in the PAPER TRADE JOURNAL, bringing to the attention of mill owners and individual papermakers our desire to procure any items relating to the history and development of American papermaking. We are anxious to locate early ream wrappers, mill account books, maps and charts of mill properties, photographs of mill interiors,—in fact, anything that relates in any way to the subject of American papermaking. We feel there are numerous items of American papermaking interest that should have a permanent place in the Paper Museum and we wish to send out an appeal for such material."

J. P. Burke Fights Salary Increase

FORT EDWARD, N. Y., December 9, 1940—John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers and a delegate to the recent convention of the American Federation of Labor at New Orleans, was among those who unsuccessfully fought a move to increase the salaries of William Green, president, and George Meany, secretary-treasurer, from $12,000 to $20,000 and from $10,000 to $18,000 a year respectively. Sponsors of the increases won in the balloting. Mr. Burke moved to amend the report by fixing the salaries of both officials at $15,000 and $12,000 respectively.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 11, 1940—Government Printing Office has received the following bids for 336,000 pounds (4,000,000 sheets) of 24½ x 32 white mimeograph paper; Old Dominion Paper Company, 4.873 and 5.354 cents; Whitaker Paper Company, 4.43 cents; Mudge Paper Company, 4.8 cents; R. P. Andrews Paper Company, 4.37 cents; Stanford Paper Company, 5.16 cents; Barton, Duer & Koch Paper Company, 4.37 cents; Mathers-Lamm Paper Company, 5.66 cents; Cauthorne Paper Company, 4.91 cents; Virginia Paper Company, 5.89 cents; Eastern Corporation, 5.90 cents; Perkins-Goodwin Company, 4.43 cents; and L. Hyman & Sons, 5.5 cents.

For 17,250 pounds of 50% rag, 21 x 32, No. 32, white bond paper; R. P. Andrews Paper Company, 10.53 cents; Mudge Paper Company, 11.13 cents; Cauthorne Paper Company, 10.97 cents; Mathers-Lamm Paper Company, 10.62 cents; and Paper Corp. of U. S., 11.65 cents.

For 43,000 pounds of 50% rag, same No. 48; R. P. Andrews Paper Company, 10.43 cents; Mudge Paper Company, 10.43 cents; Cauthorne Paper Company, 11.08 cents; Mathers-Lamm Paper Company, 10.62 cents; Paper Corporation of U. S., 11.65 cents; and L. Hyman & Sons, 13.77 cents.

For 20,000 pounds of 100% rag, 21 x 32 white ledger paper; R. P. Andrews Paper Company, 19.13 cents; Barton, Duer & Koch Paper Company, 18.28 cents; Mudge Paper Company, 20.69 cents; Cauthorne Paper Company, 20.88 cents; Mathers-Lamm Paper Company, 19.09 cents; Paper Corp. of U. S. 19.2 cents; and L. Hyman & Sons, 20.77 cents.

For 4,000 pounds of 100% rag, 21 x 32½ white ledger paper; R. P. Andrews Paper Company, 19.13 cents; Barton, Duer & Koch Paper Company, 18.75 cents; Mudge Paper Company, 20.69 cents; Cauthorne Paper Company, 21.4 cents; Mathers-Lamm Paper Company, 19.09 cents; Paper Corp. of U. S., 19.2 cents; and L. Hyman & Sons, 20.77 cents.

For 58,000 pounds of 20 x 25 antique M.F. cover paper; R. P. Andrews Paper Company, 6.99 cents; Barton, Duer & Koch Paper Company, 6.98 cents; Stanford Paper Company, 7.23 cents; Whitaker Paper Company, 7.2 cents; Mudge Paper Company, 7.17 cents; Cauthorne Paper Company, 6.77 cents; Marquette Paper Company, 6.76 cents; and Walker Goulard Plehn Company, 6.75 cents less 2%.

For 36,000 pounds of 24½ x 30½ white mimeograph paper; Whitaker Paper Company, 4.43 cents; Old Dominion Paper Company, 5.144 cents; R. P. Andrews Paper Company, 4.37 cents; Barton, Duer & Koch Paper Company, 4.41 cents; Stanford Paper Company, 5.16 cents; Cauthorne Paper Company, 4.91 cents; and Eastern Corporation, 5.9 cents.

John Lobb Goes to Crown-Zellerbach

PHILADELPHIA, Pa., December 9, 1940—John J. Lobb, 1027 Kerlin street, Chester, who has been associated with the Scott Paper Company for the past 28 years, resigned to accept an executive position with the Crown-Zellerbach Corporation, and assumed his new duties on December 2. Mr. Lobb was assistant to the second vice-president in charge of research for the last year, and for 2 years previously was general superintendent of the paper mill.

New Dominion Budget Curtails Some Imports

Wide Variety of Cheaper Magazines Restricted From Entering Canada From United States To Improve Exchange — Regulations On Natural Silk Indirectly Affects Pulp Industry — Other News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 9, 1940—The supplementary budget which the Dominion Government has passed prohibiting the import of a wide variety of products from the United States and rigidly curtailing the import of many others, while at the same time giving freer access to the Canadian market for many products of the United Kingdom, is a direct result of the enormously increasing imports of essential war materials and war equipment from the United States. The budget affects in some measure the pulp and paper industry and the allied forest industries. This war trade has had an unprecedented effect on the problem of exchange, since it has made it extremely difficult for Canada to find sufficient funds in U. S. currency with which to pay for her imports from the United States. As trade now goes, Canada has a substantial net debit balance with the United States, and a large credit balance with the United Kingdom. The budget, it is hoped, will help to rectify this and to keep this triangular trade on a sound foundation. In introducing the new regulations the Finance Minister said: "Canada is not keeping out these American goods because she wants to, but because she has to. The United States will not get one dollar less from Canada, but the money will go into necessary war equipment instead of unnecessary luxuries."

Imports of Cheaper Magazines Curtailed

Among the items affecting the paper industry is a wide variety of the cheaper magazines.

The following reading material is on the list of imports prohibited except when originating within the Empire:

"Periodical publications, unbound or paper bound, consisting largely of fiction or printed matter of a similar character, including detective, sex, western and alleged true or confession stories, and publications, bound or paper bound, commonly known as comics, but not including bonafide supplements used with newspapers."

It is left to the Revenue Minister to decide whether or not any publication is to be included in the foregoing description and his word shall be final and conclusive. Bulk of such publications read in Canada come from the United States.

Officials of the Revenue Department said the import ban would not affect any of the "better-class, serious magazines" published in the United States, and that it was aimed primarily at certain of the so-called "pulp" magazines made up almost entirely of fiction of the more dramatic type and with few serious articles.

For the fiscal year ending March 31, 1940, magazines and periodicals imported from the United States had a value of $6,633,677, this being the highest figure for such importations in the past 10 years.

Regulations Indirectly Affecting Pulp

Indirectly affecting the pulp-making industry in Canada are regulations by which imports of natural silk are to be cut down as rapidly as Canadian factories can change over to the use of artificial fibre. Natural silk will continue to be admitted only temporarily, and in decreasing amounts, from non-sterling countries. This will hit Japan particularly.

At the same time the tariff on British artificial silks, ranging from five to 25 per cent, has been removed. The British artificial silk industry at present is endeavoring to capture world artificial silk markets held by Italy before Britain began her blockade of the Continent.

Canada already has a substantial artificial silk industry and almost unlimited supply of the essential raw materials, pulp and power. In addition, a plant is being erected at Kingston, Ont., for manufacture of nylon which can be used as a substitute for silk in making parachutes, in addition to being used in women's lingerie and stockings.

In commenting on this phase of the tax changes, Maj. Douglas Hallam, secretary of the Primary Textile Institute and secretary of various associations dealing with wool, cotton, silk and rayon said:

"In this war it is fortunate that Canada has an efficient textile industry in a position to do a very fine job for the three services and the country.

"While it is too early to foresee the effects of this budget, the textile industry will willingly make any necessary sacrifices to hasten the successful conclusion of the war."

Allied forestry industries in the United States will be affected by regulations severely restricting the import of many kinds of lumber and timber and manufactures of these, including plywood and veneers.

Charge of 10 Cents Per Cord Put on Wood

Meanwhile in Quebec Province a measure put into force by the Quebec government will affect forest companies in this province. This institutes a charge of 10 cents per cord of wood cut by the forest companies, to be paid as a special contribution to the cause of education. The revenue expected from this source is placed at approximately $230,000.

In 1921, a law was passed by the Legislature enabling the Government to impose an educational tax of 15 cents per cord on exported wood and of 10 cents per cord of wood utilized in the province. It was never applied. The Godbout Government has decided to enforce it, the money to be used exclusively for the development of technical, forest and industrial education.

Smith Paper Co. Buys Building

KANSAS CITY, Mo., December 2, 1940—The H. H. Smith Paper Company, for several years wholesale distributors of paper from a location at 1011 McGee Street has purchased a 2-story building at 1026-28 Broadway. The new location will give the firm 17,000 feet of floor space.

Aid May Be Extended to Newsprint Mills

While Earnings of Canadian Industry Have Sharply Increased This Year Its Importance In Export Market May Bring Forth Government Aid If Needed—Action On Abitibi Delayed—Other News.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 9, 1940—Almost every day citizens of Canada are confronted with some new and startling political development as a result of the conflict. It has compelled Canada to turn back to a long-discarded policy of direct assistance to industries whose products are in demand on the export market. Armament buying and the dislocation of trade are straining Canadian exchange resources until, Hon. J. L. Ilsley announced in his interim budget this week, steps must be taken to aid industries whose output can be disposed of in non-sterling countries, thus bettering Canada's international monetary position.

Notwithstanding the great improvement in newsprint companies during recent months, it is understood that this important export industry is to be given assistance, under certain circumstances, along with gold mining. This assistance is likely to come in the way of special consideration with respect to the excess profits tax and reserve allowances.

Newsprint Industry Earnings Higher

The industry as a whole has enjoyed a pronounced increase in earnings from operations this year, in contrast with relatively poor average showings in the four previous years, which are the general standard on which excess profits tax will be based. In the case of Abitibi Power and Paper Company, for instance, 1940 earnings available for bond interest are estimated roughly at $6,000,000, compared with an average in the four base years of slightly over $2,000,000. In the case of Great Lakes Paper Co., 1940 earnings, after bond interest, but before taxes, are estimated at $950,000, compared with an average of about $200,000 in the three previous years.

Steps will be taken to extend gold output, which will bring into production many new marginal mines which cannot, without assistance, operate at a profit, and maintain others which otherwise might close down. A similar policy will be followed with regard to Canadian newsprint mills, which are located mainly in Ontario and Quebec. The war has closed off many overseas competing sources, particularly to South America, and it is believed also that other markets can be developed.

Direct subsidies are useless, in the main, because most countries, particularly the United States, have automatic tariff provisions which operate against import of directly subsidized products. There is also the factor that, once the conflict is over, it may not be possible to hold the new markets and the companies would then be the victims of their own over-expansion.

Large tax concessions are likely to be made to "marginal" gold mines and newsprint firms which expand to increase their export output. For one thing, they will be permitted to write off "depreciation" at a rapid rate, a concession already granted to war industries likely to suffer when peace comes.

Special Consideration for Paper Mills Mentioned

Grounds advanced for special consideration for these and other paper producers include the claim that they were among "depressed industries" over the past few years, and also that as a great export industry, and thus a bulwark of Canadian exchange, they are entitled to special treatment as regards depreciation and depletion reserves.

Later the same policy may be extended to other industries whose goods can be sold in considerable quantities outside Canada.

When asked for an opinion on this question of taxation concessions for the pulp and paper industry, Hon. Peter Heenan, Ontario minister of lands and forests, said: "I wouldn't want expansion of any newsprint mills. There are too many of them at present. Of course anything that could be done to help the newsprint industry that was sound would be welcome."

Action on Abitibi Sale Delayed

During the hearing of the application of the Montreal Trust Company for a new sale of Abitibi Power and Paper Company assets, which, as reported in this column last week, was adjourned until December 9, Mr. Justice Middleton in the Ontario Supreme Court also heard a motion from Strachan Johnson, K. C., counsel for G. T. Clarkson, receiver for Abitibi, for direction as to what action he could take in respect to the request of the Royal Commission sitting on Abitibi for his ideas for a practicable re-organization plan. On this motion, the Justice ruled that Mr. Clarkson could give all possible assistance to the Royal Commission in its work, but he did not direct him specifically to prepare a re-organization plan.

Glyn Osler, K. C., representing the Bondholders' Protective Committee, opposed granting Mr. Clarkson authority to prepare his own re-organization plan on the grounds that this would interfere with his ability to carry out his duties as an officer of the court and would make him a party intervening between different classes of security holders.

On the other hand, Arthur Slaght, K. C., appearing for the Preferred Shareholders' protective Committee, sought to have Mr. Clarkson given authority to prepare a definite plan of re-organization. R. O. Daly, K. C., representing the Common Shareholders' Committee, supported Mr. Slaght.

Now Rice Barton Corp.

Rice, Barton & Fales, Inc., Worcester, Mass., make the following announcement:

"For many years our company, organized in 1837, and its product, have been generally known to the trade as 'Rice-Barton'. In view of this, it has seemed fitting that the name be changed to comply with its general designation, and we have, therefore, voted to change it to Rice Barton Corporation."

Wiener Sells Patents to Downingtown

J. A. Wiener, manager of the Insulating Board Mill of Johns-Manville at Jarratt, Va., announces that he has sold the entire business of the Wiener Refiner Engineering Company, formerly of Oswego, N. Y., to the Downingtown Manufacturing Company, Downingtown, Pa. This includes all patents and designs applying to the Wiener Refiner and Wiener Stock Regulating Valves. Users of the nearly 100 Wiener Refiners now in service can, therefore, obtain service and parts from the Downingtown Manufacturing Company.

It will be recalled that John Wiener was formerly with the Oswego Board Corporation, Oswego, N. Y.; the Masonite Corporation, Laurel, Miss.; the Marathon Paper Mills Company, Rothschild, Wis.; Abitibi Power and Paper Company, Ltd., Iroquois Falls, Ontario, Canada; and the Minnesota and Ontario Paper Company, International Falls, Minn.

Idea Developed as Early as 1925

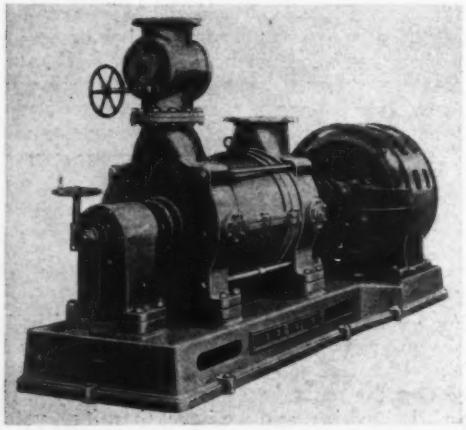
As early as 1925, John Wiener developed the original high speed (1800 r.p.m.) refiner operating under hydraulic pressure, to handle coarse, steam-exploded fiber used in the manufacture of insulation board. From its ready adaptability to refine this stock, which it is stated no other refining equipment could handle, the Wiener Refiner has proved its usefulness to an increasing number of mills.

In 1928 a Wiener Refiner, with its new principles of pulp preparation, was installed in a paper mill for the first time, to operate on sulphite, rope and jute stocks. This application of the refiner was found to be a great improvement over previous methods of preparation, and kraft pulp was soon added to the refiner furnish. The Wiener Refiner is doing the same job in the same mill today.

Wiener Screen-Type Refiner in 1932

In 1932 the Wiener Screen-Type Refiner, a radically new piece of equipment, combining screening and refining action in a single unit, was developed.

In 1933 a Wiener Refiner of slightly larger size (15-inch plug) was built for the convenience of mills desiring to use the refiner with 1200 and 1500 r.p.m. motors.



WIENER REFINER

In 1934 Wiener Refiners were successfully operating on deinking stocks, brushing out the stubborn fiber bundles that were long the bane of bleaching systems.

In 1935 the Wiener Refiner was first successfully used as a colloid mill in the dispersion of coating clays and pigments.

In 1936 a small-size Wiener Refiner, with an 8-inch plug, was developed to meet the needs of mills having a very small tonnage of pulp requiring refining.

In 1937 the full development of the Wiener Refiner as a prebeater was realized. The Wiener Refiner came into increased usage in the beater room to operate on all types of pulps, sulphates, sulphites, different combinations of liner and filler pulps. Beating time and power consumption per ton were reduced, and production was increased.

New, Larger Wiener Refiner in 1938

And 1938 saw a new, large Wiener Refiner, with a 24-inch plug, successfully introduced to the paper industry in the handling of raw hot kraft pulp in the black liquor, before being fed to filters, in a black-liquor recovery system.

The power savings possible through using high speed refiners, and the improvement in refining quality by refining under hydraulic pressure are two of the outstanding recent contributions of the Wiener Refiner to paper making.

The Wiener Refiner has utilized the possibilities offered by having the stock inlet on the large end of the plug. This arrangement permits increasing intensity of refining as the pulp passes through the unit. From the larger-sized bars at the inlet end of the plug, the stock passes to the finer bars at the discharge end, thereby utilizing to the maximum the capacity for dispersion and hydration. The Wiener Refiner depends for its action on the hydraulic impact of the suspended pulp against the bars of the plug and shell, as contrasted with the usual cutting and shearing action required of a jordan. For that reason, the Wiener Refiner is operated with a considerable clearance between plug and shell.

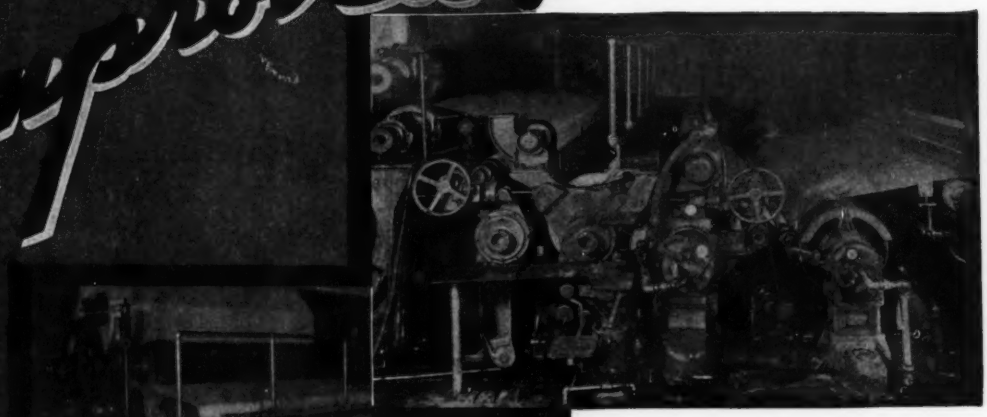
For installations desiring a different type of action, more of a cutting nature with the limitation or absence of hydration, the Wiener Refiner is supplied with the plug reversed, and the stock inlet on the small end of the plug, as in conventional jordans.

Screen Type Wiener Refiner

The screen type Wiener Refiner is recommended for installations where screening and refining actions are desired. The perforated inner shell of the refiner is surrounded by a cylindrical outer shell into which is discharged the acceptable stock. The rejected stock within the refiner is subjected to intensive action and is discharged separately from the acceptable stock.

The Wiener Refiner has a unit for every tonnage and every purpose. The speed at which Wiener Refiners should be run is as follows: The recommended motor speed for the 8-inch refiner is 1800 r.p.m.; for the 12-inch refiner, 1800 r.p.m.; for the

Improved!



BELOIT HORIZONTAL *Dual Press*

PATENTS PENDING

• The Beloit Horizontal Dual Press has been improved by incorporating a primary roll over the first suction press, adding another nip. Thus, this press is now equivalent to three presses instead of two, the first suction roll doing double duty.

• The success of the Beloit Horizontal Dual Press has been definitely established. This new press gives even better results.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS. **IS THE MODERN WAY**

BELOIT IRON WORKS BELOIT WISCONSIN

15-inch refiner, 1200-1500 r.p.m.; and for the 24-inch refiner, 750-900 r.p.m.

The wide use of the Wiener Refiner makes any general statement of the power requirements and tonnage productivity subject to a great many qualifications. The standard refiners, with a 12-inch plug, under ordinary circumstances, will produce as follows:

Description of Pulp	Motor Required	Tonnage per 24 Hours
Very soft stock, old paper, etc.....	100 hp.	40-65
Soft stock—prebeating	125 hp.	30-45
Medium stock—well cooked chemical pulp.	150 hp.	25-40
Hard stock, chips, kraft, semi-cooked pulp	200 hp.	15-30

Upon request, estimates will be furnished for productive capacity and power requirements for specific installations and on other sizes and types of Wiener Refiners. These estimates are based on actual operating data, and prospective users may have the assurance of knowing what the Wiener Refiner will do for their pulp in advance.

Small Size and Modest Floor Requirements

The Wiener Refiner's small size and modest floor requirements are in striking contrast to its productivity. The table below effectively illustrates the small size of the Wiener Refiners:

Size Refiner	Length	Width	Height
8"	7' 8"	2' 4"	2' 4"
12"	10' 6"	3'	3'
15"	11' 6"	3'	3'
24"	12' 8"	4'	4' 6"

Engineers of the Downingtown Manufacturing Company are thoroughly familiar with Wiener Refiner and are ready to apply John Wiener's experience to stuff preparation problems.

Wiener Stock Regulating Valves, now made and sold by the Downingtown Manufacturing Company, have earned a record for trouble-free service so well that they are now known as the "one cost valve", the first cost being the last.

Uniform Flow Under Uniform Pressure

The Wiener Stock-Regulating Valve was designed to give what its name implies—a uniform flow under uniform pressure. The unusual design and splendid workmanship on these valves eliminate problems of plugging and flow control wherever they are used.

These valves are recommended for use on any liquid which may or may not contain solids in suspension. Their wide use in the paper, pulp, chemical and other industries indicates their application is widespread.

Wiener Stock-Regulating Valves are furnished in lever types and worm-gear types; also, when desired, with an indicating device to show fraction of opening at various settings. They are regularly furnished in cast iron, steel, bronze, and stainless steel, and in other metals.

WIENER STOCK REGULATING VALVES

Wiener Stock-Regulating Valves are manufactured in all standard sizes from one inch to twenty-four inches. Screw type valves can be furnished in sizes up to and including four inches. Flanged type valves are furnished three inches in size and larger. Flanged valves are furnished with standard A. S. M. E. drilled flanges, and are built for 125 pounds pressure. Screw type valves are standard screw type fittings.

Four Standard Models

Four standard models have been developed to meet general industrial needs. Model "A" Straightaway, is the all-purpose valve. It is provided with a single inlet and outlet in the same plane. A straightway model valve is provided with every Wiener Refiner as a discharge-regulating valve. Its use is ideal for inlet or outlet control on all equipment where uniform flow and internal pressure are desired.

Model "B", Angle, combines a straightway valve with an elbow. The inlet is opposite the worm gear, with the outlet at the side.

Model "B", Angle, combines a strightway valve worm gear, with two outlets at the side. This model is ideal for all installations where an overflow is desired, diverting part of the flow to a separate line.

Model "D", Straightway Outlet, has the inlet opposite the worm gear, and two oppositely disposed outlets at the side. The flow through this valve can be shut off completely, or it can be regulated into either of the two outlets, but not into both. This unusual model valve complements Model "C", Side Outlet.

The Downingtown Manufacturing Company intends to carry a stock of the most used sizes and types of Wiener Valves, so that immediate shipment can be made. Parts for other valves will be carried in stock to assure prompt shipments.

Paper and Cordage Men Plan Party

PHILADELPHIA, Pa., December 9, 1940—Extensive plans are under way for the annual Christmas Party of the Philadelphia Paper and Cordage Association that will be held at Hotel Adelphia on Tuesday, December 19, with a turkey dinner and all the fixin's for some sixty deserving poor children recruited from the Settlement House of the Salvation Army. The kiddies will be presented with a bag of toys, sweaters, shoes, caps, gloves, skates and warm stockings. The Entertainment Committee, headed by Harry Platt of the Denny Tag Company, Real Estate Trust Building, Broad and Chestnut streets, is arranging a program that will delight the old and young alike, and to quote president George K. Hooper, "this Christmas Party will be bigger and better than ever."

Hummel-Ross Grants Licenses

Hummel-Ross Fibre Corporation announced the granting of licenses to St. Joe Paper Company, Port St. Joe, Fla., and to Fox Paper Company, Lockland, Ohio, to use the secondary head box. The following have also been licensed up to this time: Albemarle-Chesapeake Corporation, Australia Paper Mfrs., Ltd., Filer Fibre Company, Hinde & Dauch Paper Company, International Paper Company, Kieckhefer Container Company, Pacific Mills, Ltd., Schmidt & Ault Paper Company and Union Bag and Paper Corporation.

LET SANTOBRITE HELP YOU MAINTAIN PEAK PRODUCTION BY CONTROLLING SLIME!

SLIME prevents peak production because of loss of time for clean-ups and machine breaks. In addition, slime causes wasted stocks. This is costly.

Mills using Santobrite report a material reduction in these losses because Santobrite controls slime.

Santobrite is chemically stable and is non-corrosive to machine wires and screens. It is available in powder form and in easy-to-handle briquettes.

For information on the use of Santobrite in *your* mill to eliminate slime or to minimize the other losses shown at left, write for Monsanto Technical Bulletin 0-5, "Microorganism Control in the Pulp and Paper Industry." MONSANTO CHEMICAL COMPANY, St. Louis, U.S.A.

SANTOBRITE
is also effective in minimizing losses arising from:

Degradation of stored pulp lap
Spoilage of pulp stock in process
Spoilage of coating and sizing materials
Rotting of felts

MONSANTO CHEMICALS
SERVING INDUSTRY . . . WHICH SERVES MANKIND

N. F. C. T. A. Elects Officers

At the annual meeting of the National Fibre Can and Tube Association, held at the Hotel Astor, New York, on December 6, the following executive committee members were elected for the ensuing year:

President, J. L. Coker, Sonoco Products Company, Hartsville, S. C.; Eastern vice-president, H. L. Amrhein, American Paper Tube Company, Woonsocket; Western vice-president, J. W. Barbey, Motor City Paper Tube Company, Detroit, Mich.; A. J. Baumgardt, Sefton Fibre Can Company, St. Louis, Mo.; S. W. Dinsmoor, S. W. Dinsmoor Co., Lawrence, Mass.; P. S. Hanway, executive secretary, National Fibre Can and Tube Association, and Miss Elizabeth R. Brown, assistant treasurer, National Fibre Can and Tube Association.

Among the guests present were the following: Reuben Haslam, Examiner, Department of Labor, Washington; C. W. Boyce, Advisory Council, Defense Commission, Washington; H. Scherbak, New York, N. Y.; J. D. Malcomson, Robert Gair Company, New York, N. Y.; H. Schmidt, Schmidt & Ault, York, Pa.; Capt. J. S. Brierly, Picatinny Arsenal, Dover, N. J.; W. Hosking, Picatinny Arsenal, Dover, N. J.; J. Corrigan, Corrigan, Osburne & Wells, New York, N. Y.; and John G. Bell, Universal Containers, Inc., New York, N. Y.

Assurance that American industry "can far outrun" past estimates of its ability to produce and is able to meet the country's maximum needs for defense was given by D. C. Everest, group executive of the paper and pulp section of the industrial materials division of the National Defense Advisory Commission. He said that some industries are already showing what they can do under "forced draft" operations.

Mr. Everest's statement was made in a paper read for him by Charles W. Boyce, assistant group executive. Mr. Everest was unable to attend the meeting.

Mr. Everest, a past president of the American Paper and Pulp Association and head of the Marathon Paper Mills, contended that the pressure operation under the defense program "may prove a blessing in disguise."

Pointing out that American industry will be put to the test of producing for maximum defense needs in addition to added civilian requirements "which are bound to increase" through added employment, Mr. Everest declared.

Greece to Admit Swedish Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Dec. 4, 1940—Greek and Swedish Governments have concluded a one-year agreement regulating the commercial exchanges between the two countries, effective from February 1, 1940 to January 31, 1941, according to a report from the office of Commercial Attache, Athens.

The provisional list of Swedish products which Greece agrees to admit during the life of the agreement includes the following items: pulp for the manufacture of paper, valued at $254,236, and wrapping paper, valued at $24,436. A further provision in the present agreement states that goods imported by one country from the other shall be used exclusively for the domestic consumption in the importing country.

Indianapolis Demand Encouraging

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 9, 1940—With December well under way, the paper trade in this section is looking toward the new year, which it is believed will carry over the impetus gained during the last half of the present year. There is nothing in the outlook, according to manufacturers and jobbers, that would indicate anything but a continued good business after the holidays. Prices in most lines continue firm, with no indication of a run-away market, which is something leaders of the trade wish to avoid, if possible.

The fine paper field continues in a healthy tone last week with demand for books, ledgers and other items in good demand. Prices are firm with no indication of immediate change. Some of the larger local printers say there are indications of increased business even before the first of the year. They are figuring on some nice contracts.

Some decrease was seen last week in demand for building papers and roofing. The state struck its first really cold weather and much outside construction was delayed temporarily. The season has been by far the best since 1929. At the present time dealers are buying only in limited amounts and then only to balance their stocks. It is probable there will be little buying until after inventory period.

Box manufacturers report continued good business. Many of them are supplying materials used by industries figuring in the defense program. Buying of strictly holiday packages has dropped materially, though some few straggling orders were received last week.

Kraft demand was good last week. Wrapping paper and bags jumped in popularity with the approach of the Christmas season and no let-up is expected now until after the first of the year. Tissues were moving in fair quantities.

Demand for paper stocks and rags seemed about the same as it has been for some time past. Better grade paper was in fair demand, but the general trend has been slow with prices showing little strength.

To Reclaim Waste Paper

A press dispatch from East Palestine, Ohio, says that "Former properties of the National Tire and Rubber Company here are being converted at a cost of $100,000 into a plant for the manufacture of pulp from waste paper, a process which may revolutionize the paper industry, it is said.

"When completed and in full operation, which will be in about sixty days, capacity of the plant will be twenty-five tons daily and will employ 200 men.

"The T-H Enterprise Company, a new Delaware corporation, headed by J. C. Trees, of Pittsburgh, Pa., are new owners of the property and its reconstruction is being supervised by W. F. Ashe, formerly with the Thilmany Pulp and Paper Company of Wisconsin, and Frank Lyden, until recently with the International Paper Company.

"Dr. F. W. Hochstetter, Pittsburgh scientist, developer of the new process for converting waste materials into pulp for the production not only of newsprint but fine grade papers, claims it will reduce price of newsprint from the present scale of $50 and $55 a ton to $30 and $35."

CONSTRUCTION NEWS

Lynn, Mass.—The Hoague-Sprague Corporation, Eastern avenue, manufacturer of stiff paper boxes, etc., has completed plans for new addition to plant, consisting of a one-story structure, about 70 x 195 feet, reported to cost over $65,000, with equipment. Bids have been asked on general contract and work is scheduled to begin soon.

Milwaukee, Wis.—The Milwaukee Lace Paper Company, 1306 East Meinecke avenue, manufacturer of paper specialties of various kinds, has approved plans for new addition to plant, one-story, about 40 x 115 feet, to be used primarily for expansion in storage and distributing department. Cost estimated over $35,000, with equipment. Several contracts have been let for different branches of erection, including structural steel framing to A. F. Wagner Iron Works, Milwaukee; and for masonry to Harry C. Breest, Milwaukee. Excavations are being placed under way and superstructure will begin soon. Charles F. Smith, 717 North Sixty-fifth street, Wauwatosa, Wis., is architect.

Buffalo, N. Y.—The National Gypsum Company, 190 Delaware avenue, manufacturer of wall board, insulating board and kindred products, is arranging for the sale of a bond issue of $6,000,000, a portion of proceeds to be used for expansion and improvements in various mills during coming year. A fund of close to $1,200,000 will be made available for this and other corporate purposes. All wall board mills of the company are now on a capacity schedule, with sufficient orders on hand to insure continuance for some weeks to come.

Ridgefield, N. J.—The Standard Corrugated Case Corporation, 30th place and Hunters Point avenue, Long Island City, New York, N. Y., manufacturer of corrugated boxes and containers, has begun erection of proposed new plant at Ridgefield, previously referred to in these columns, and will push work to completion early next year. It will be one and two-story, about 130 x 520 feet, reported to cost in excess of $100,000, with equipment. It will be equipped for large capacity. The Bonanno Construction Company, 1827 Bergen Turnpike, North Bergen, N. J., has the general erection contract.

Minneapolis, Minn.—The Northwestern Corrugated Box Company, 1821 N. E. Marshall street, manufacturer of corrugated boxes and containers, is considering early rebuilding of portion of plant, recently destroyed by fire, with loss reported at close to $30,000, including equipment. Reconstruction will approximate a like amount.

Chicago, Ill.—The Atlas Box Company, 1385 North Branch street, manufacturer of corrugated boxes and containers, has taken out a permit for new addition to plant, consisting of a one-story building, 78 x 80 feet, to be used primarily for storage and distribution. It is estimated to cost about $25,000, with equipment. General erection contract has been awarded to A. Brickman, 3019 Odell avenue, and work will be placed under way at once. Engineering Systems, Inc., 221 North LaSalle street, Chicago, is architect and engineer.

Kalamazoo, Mich.—The Sutherland Paper Company, manufacturer of box board, coated board stocks and kindred products, is completing erection of new addition to mill, previously referred to in these columns and in course of construction for a number of weeks. Operations will be placed under way as soon as the unit is ready. It will be used for a converting plant for the production of paper milk bottles, for which company has secured a contract totaling about 20 carloads. Four machines are being installed, with auxiliary equipment. It will give employment to about 40 persons. Walter B. Hadley will be in charge of operations at the plant.

Los Angeles, Calif.—The Paraffine Companies, Inc., 475 Brannan street, San Francisco, Calif, manufacturer of wrappers and tube chip, building papers, etc., has approved plans for new factory branch, storage and distributing plant at 4231 Firestone boulevard, South Gate, Los Angeles, consisting of three one-story buildings, 125 x 140 feet, 100 x 140 feet, and 46 x 76 feet, the latter to be used for office service. Cost is reported over $80,000, with equipment. A permit has been issued and work will be placed under way at once.

Port Edwards, Wis.—The Nekoosa-Edwards Paper Company, Inc., manufacturer of writing and other paper stocks, will make contract award soon for structural steel framing for proposed new addition to paper machine building No. 7, recently referred to in these columns, and will proceed with erection immediately following. New structure will require about 120 tons of steel and will provide for considerable expansion in present facilities. No estimate of cost has been announced.

San Francisco, Calif.—The Royal Container Company, 198 Bay street, San Francisco, manufacturer of corrugated boxes and containers, has approved plans for new addition to plant at Millbrae, near San Francisco, consisting of a one-story unit, to be equipped for considerable increase in present capacity. Cost is estimated close to $50,000, with equipment. Erection will be carried out by day labor and work is scheduled to be placed under way at once.

Green Bay, Wis.—Fire recently damaged a portion of mill of the Northern Paper Mills, manufacturer of tissue and other paper stocks, No official estimate of loss has been announced. Damage will be replaced at early date.

St. Louis, Mo.—Drug Package, Inc., 2419 Glasgow avenue, manufacturer of paper boxes and containers for drug products, has begun erection of new addition to plant and expects to complete structure for occupancy early next year. It will be one-story, 20 x 180 feet, as previously noted in these columns, estimated to cost in excess of $50,000, with equipment. George Moeller Construction Company, 3007 Wyoming street, St. Louis, has the general erection contract. Leonhard Haeger, 3844 Utah place, St. Louis, is architect.

Three Rivers, Que.—The Consolidated Paper Corporation, Sun Life Building, Montreal, Que., manufacturer of newsprint, kraft papers, etc., has

approved plans for new one-story addition to its Wayagamack Division mill at Three Rivers, to be used for storage and distribution. It is reported to cost close to $50,000, with equipment. Erection contract has been awarded to J. P. Morin, 119 St. Georges street, Three Rivers, and work will proceed at once.

New Companies, Etc.

New York, N. Y.—The State Container Company, Inc., has been incorporated with capital of 200 shares of stock, no par value, to manufacture paper boxes, cartons and allied paper products. New company is represented by Begun Brothers, 370 Seventh avenue, New York, attorneys.

Chicago, Ill.—The Continental Carbon Corporation, 626 Federal street, has been chartered with capital of 10 shares of stock, to deal in carbon papers and other commercial paper stocks. New company will take over and succeed to an organization of same name, address noted. The incorporators include T. C. Carroll, F. Q. Ketchem and G. R. Duncan.

Los Angeles, Calif.—The Paper Container Manufacturing Company, 1752 East 75th street, Chicago, Ill., manufacturer of paper cups, plates, etc., has filed notice of organization to operate in California, with capital of $40,815. J. M. Sholl Lewis, Garland Building, Los Angeles, is representative.

Delaware Valley TAPPI Meets

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met at the Engineers Club, Philadelphia, Pa., Friday evening, December 6. E. J. Albert of the Thwing-Albert Instrument Company presided as chairman.

Three sound films were presented: "The Story of Neoprene" and "A New Yorld Through Chemistry," supplied by du Pont, and "The Panama City Mill of the Southern Kraft Division of the International Paper Company."

Preceding the films, Chaplin Tyler of du Pont gave a resume of progress made in the past quarter century in the production of a number of materials previously imported, such as dyestuffs, ammonia compounds, and potash. Production of replacements for other materials including rubber and silk was also mentioned.

Fifty-eight were present at dinner and seventy-five at the showing of the films. Among those present were: C. G. Albert, E. J. Albert, G. A. Albert, Paul C. Baldwin, R. M. Bates, S. W. Blanchard, Alan R. Boyd, F. W. Brainerd, S. G. Briscoe, J. W. Brown, J. M. Chesnutt, A. M. Cooper, Robert Couch, J. D. Davis, L. F. Derr, George H. Detwiler, J. C. Dieffenderfer, R. H. Dillinger, G. S. Douglas, Paul Easton, D. Edgar, Jacob V. Edge, J. Edge, P. C. Evanoff, George A. Farrah, D. L. Gibson, J. F. Good, A. J. Goudyke, Ward Harrison, Ray E. Harter, Alfred M. Hartley, Ed. Heckman, J. I. Hoffman, H. F. Hoffman, V. Jacobsen, Glen T. Kenegar, H. C. Kinne, George J. Lane, John Macadam, J. McCalmont, George B. Martin, M. Craig Maxwell, S. E. McGrath, Alex McInnes, Robert C. McKee, Lewis B. Miller, W. B. Morehouse, G. V. M. Morin, E. N. Poor, D. S. Raub, C. W. Rivise, Jay Robinson, J. Carl Schmidt, Adolf Schnabel, E. A. Shallcross, F. S. Stewart, Elliot I. Stokes, Howard H. Sweet, P. J. Stuart, Jr., Samuel Swope, J. W. Voller, A. E. Waugh, and P. E. Williams.

DISCARDS FREIGHT RATES

(Continued from page 9)

evening at Rainbow Gardens, where Prof. Edwin E. Witte, of the department of economics at the University of Wisconsin, Madison, Wis., was the principal speaker. Prof. Witte is credited with developing much of the social security legislation of the New Deal. Other speakers were Arthur Huggins, president of the International Brotherhood of Pulp and Paper Mill Workers, and James Killen, west coast representative of the paper makers. Attorney Samuel Sigman of Appleton, was the toastmaster. A dance was held afterwards.

Sponsoring unions were: Paper Converters local 324, Tuttle Press Company, with Vernon Holterman as president; Pulp and Sulphite Workers Local 81, Interlake Pulp and Paper Company, with Grant Rohm as president, and Papermakers Local 16, Fox River Paper Corporation, with Henry Rammer as president.

Fox River Paper Men To Meet

Representatives of the paper industry's employers and employees of the Fox River Valley, will hold a meeting at Green Bay, Wis. Tuesday, December 10. They will discuss mutual problems.

Russell J. Le Roux Goes to Weyerhaeuser

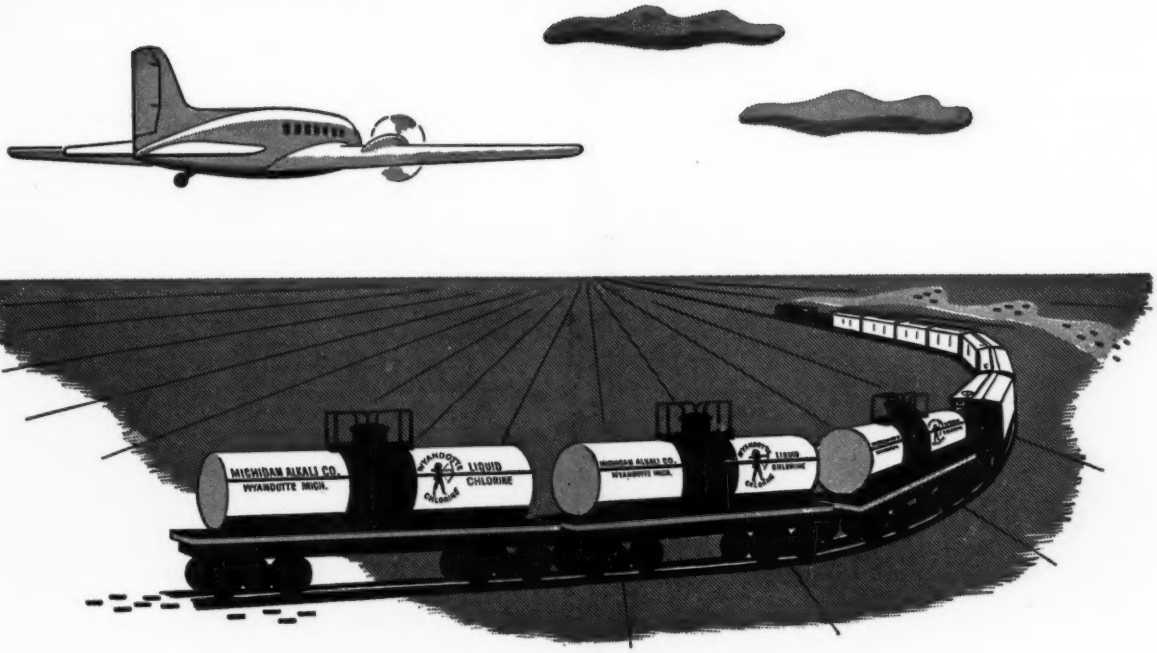
Russell J. Le Roux, sales manager of the pulp department at the Interlake Pulp and Paper Company division of Consolidated Water Power and Paper Company, Appleton, Wis., has resigned to join the pulp division of the Weyerhaeuser Lumber Company. He will be stationed at Everett, Wash., and will assume his duties January 1. A farewell banquet was to be held Monday evening, December 9, by foremen and other officials.

Hercules Powder to Exhibit at Chicago

The Hercules Powder Company will display new developments in its naval stores, cellulose products, synthetics and paper makers chemicals at the National Chemical Exposition, Hotel Stevens, Chicago, Ill., December 11-15. The exhibit will indicate the range of industries to which the company supplies raw materials.

Vinsol resin for asphalt emulsions, foundry cores and electrical uses; Staybelite, a hydrogenated rosin which resists oxidation and light discoloration; terpene solvents used in textile, paint and varnish, rubber and other industries; pale wood rosins used in many products; ethyl cellulose, cellulose acetate and nitrocellulose for lacquers and plastics with a wide range of properties will be included in the exhibit. Other materials featured will be Parlon, a chlorinated rubber base which speeds the drying of synthetic finishes; and a series of rosin esters.

The following representatives of the company will attend the show: A. B. Nixon, vice president; J. B. Wiesel, director of sales, cellulose products department; Paul Mayfield, director of sales, naval stores department; W. M. Billing, manager, synthetics department; Theodore Marvin, advertising manager; Richard T. Yates, manager, domestic sales, naval stores department; G. F. Hogg, manager, Chicago naval stores sales office; P. F. Robb, J. T. Skelly, Jr. and R. F. Metzler, cellulose products department.



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We cannot ship Michigan Alkali Chlorine by air, but, when emergency demands it, we *can* send a Michigan Alkali technical man flying to give you immediate help.

Thus, before a Michigan Alkali Chlorine shipment arrives at your plant, a Michigan Alkali technical man can be on hand, ready to help you work out any problems that may arise in connection with the use or handling of chlorine.

The Technical Service Department of Michigan Alkali exists for one purpose: to see that our customers are getting the best possible results from the use of Michigan Alkali chemical products.

Our technical men are constantly on call as consultants to the paper industry, and whether you use Michigan Alkali Chlorine or not, a member of our staff is at your disposal, without obligation.

Have you a special problem now? Write us. We will be glad to co-operate.

WYANDOTTE CAUSTIC SODA

A new 56-page booklet on the uses, handling and properties of caustic soda has been prepared by Michigan Alkali. It is an indispensable manual and reference booklet. We will send you a copy free of charge on request. Write to Michigan Alkali Company, 60 East 42nd Street, New York, N. Y.

50th ANNIVERSARY 1940

MICHIGAN ALKALI COMPANY

Works: **Wyandotte, Michigan** ***General Sales Office:*** **60 E. 42nd St., New York City**

MANUFACTURERS OF SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA • CALCIUM CHLORIDE • DRY ICE
LIQUID CHLORINE • CALCIUM CARBONATE • COKE • CEMENT • TAR • TOLUOL • BENZOL • XYLOL • CALCIUM HYPOCHLORITE

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending December 11, 1940

	High	Low	Last
A. P. W.	2	2	2
Aromstrong Cork Co.	32¾	29¼	29½
Celotex Corp.	7	6¾	6¾
Celotex Corp., pf.	69	68½	68½
Certain-Teed Products Corp.	5	4⅞	4⅞
Certain-Teed Products Corp., pf.	37⅝	36	36½
Champion Paper & Fibre Co.	....	....	....
Champion Paper & Fibre Co., pf.	105	104	105
Congoleum-Nairn Co.	17¾	16½	16¾
Container Corp. of America	15¾	15½	15¾
Continental-Diamond Fibre Co.	7½	7⅛	7½
Crown-Zellerbach Co.	15¾	15	15½
Crown-Zellerbach Co., pf.	92	91	91
Flintkote Co.	17⅛	16⅝	16⅞
Robert Gair	2¾	2½	2¾
Robert Gair, pf.	18	15½	18
International Paper & Power	17¼	16	16⅜
International Paper & Power, pf.	71⅜	68¾	69½
Johns-Manville Corp.	61¾	59⅝	61½
Johns-Manville Corp., pf.	128	128	128
Kimberly Clark Corp.	39⅛	38½	39⅛
MacAndrews & Forbes	30⅛	29¾	29¾
MacAndrews & Forbes, pf.	135	134½	134½
Masonite Corp.	27¼	26½	27¼
Mead Corp.	9	8½	8⅞
Mead Corp., pf.	65¼	65	65¼
Paraffine Companies, Inc.	37⅜	37	37⅜
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	17½	17	17¼
Rayonier, Inc., pf.	30⅜	28¼	30
Ruberoid Co.	16	15⅛	15⅞
Scott Paper Co.	38	37	37
Scott Paper Co., pf.	110	109½	109½
Sutherland Paper Co.	21½	20¼	21
Union Bag & Paper Corp.	13¼	12½	12½
United Paperboard Co.	3½	3½	3½
U. S. Gypsum Co.	69¾	67¾	69
U. S. Gypsum Co., pf.	180	177	179¾

New York Curb Exchange

High, Low and Last for Week Ending December 11, 1940

	High	Low	Last
American Box Board Co.	4⅝	4½	4½
Brown Co., pf.	....	....	....
Great Northern Paper	42¼	42	42
Hummel-Ross Fibre Corp.	6¾	6¾	6⅜
National Container Corp.	11¾	11¼	11¼
St. Regis Paper Co.	2½	2⅜	2⅜
St. Regis Paper Co., pf.	82	79½	80
Taggart Corp.	3½	3⅛	3½

Johns-Manville Calls Stock

The Johns-Manville Corporation has notified holders of its cumulative 7 per cent preferred stock that it planned to redeem on Jan. 1 next 17,500 shares of the issue.

The shares to be taken up were drawn by lot on Dec. 4 and will be redeemed at the offices of J. P. Morgan & Co., Inc., paying agent, at $121.75 a share, which is the call price of $120 a share, plus accrued dividend due on the redemption date.

In April this year the company redeemed 7,500 shares of the stock and upon completion of the current operation there will remain outstanding 50,000 shares of the original issue of 75,000 shares.

Great Lakes Raises Dividend

TORONTO, Ont., December 9, 1940—The Great Lakes Paper Company has declared a dividend of 50 cents a share on its classe A and B preference stock, payable Dec. 31, 1940, to shareholders of record Dec. 21. Arrears following this payment will remain unchanged at $8.25 a share.

Great Lakes Paper paid its initial dividend of $1 a share a year ago, following this up with three 25-cent payments this year. Total dividends paid for 1940, will, therefore, be $1.25 a share on the two preference stocks. These stocks carry a cumulative $2 annual dividend.

Ralph Luethi Continues as Trustee

UTICA, N. Y., December 9, 1940—Judge Frederick H. Bryant last week approved the continuation of Ralph Luethi of the Savquoit Paper Company after unanimous request to that end was made in Federal Court here.

Ernest W. Brackett, attorney for the trustee, told the court that the company which showed a loss of $97,000 from January 1 to October 15, including a $12,000 loss in October, now is showing a profit and there was every indication it would continue to be operated profitably.

Edward M. Brown, attorney for the debtor, urged continuation of the trusteeship and Ernest Meyer, auditor of Robert Gair Company, New York City, a large creditor, joined in the request.

Hammermill Files With SEC

The Hammermill Paper Company has filed with the Securities and Exchange Commission a registration statement covering 30,000 shares of common stock of $10 par value.

The stock is now outstanding. It is owned to the extent of 15,382 by the estate of E. R. Behrend, late president of the company, and 14,618 shares by Mary B. Behrend. A. G. Becker & Co., will be the principal underwriter.

Flintkote Votes $1 Dividend

The Flintkote Company has voted a distribution of $1 a share on the common stock, payable December 23 to stockholders of record December 16. This is the first disbursement since a payment of the same amount was made on December 20 a year ago, the only dividend in 1939.

Central Fibre Nets $712,224

The Central Fibre Products Company for the year to June 29, reports a net income of $712,224, equal after preferred dividends, to $2.20 a share on 213,603 shares of $5 par common stock, compared with $356,033, or 54 cents a common share in year to July 1, 1939.

Hummell-Ross Votes Dividend

The Hummell-Ross Fibre Corporation has declared a dividend of 15 cents a common share, payable December 31 to stock on record December 16. This makes total of 70 cents a share paid in 1940, against 20 cents a share last year.

St. Lawrence to Pay Dividend

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 25, 1940—First dividend payment since April 15, 1931, has been declared on the 6 per cent preferred stock ($100 par) of St. Lawrence Paper Mills Company Limited in the distribution of $2.00 on account of arrears payable December 23 of record December 10. Arrears

currently total $56.75. The last distribution in 1931 was 75c. Also declared by the company was a quarterly dividend of 50c on the same stock, payable January 15 of record January 2, 1941.

St. Lawrence Corporation, Limited, which holds practically all the common stock of St. Lawrence Paper Mills, has declared a dividend of 90c on arrears payable December 23 of record December 10 plus a quarterly dividend of 25c payable January 15 of record January 2 on the class "A" four per cent cumulative preferred—$50 par—in arrears to the extent of $15.50 a share following the payment on January 15. Three previous payments have been this year at the rate of 20c a share and current payment on arrears will bring total amount paid in 1940 to $1.50 compared with $1 last year.

Another Mill Reaches Capacity

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 2, 1940—A power shortage owing to water conditions prevented Minnesota and Ontario Paper Company from maintaining in September its full production capacity reached during July and August. A power shortage in the International Falls and Fort Frances area has resulted from deficient rainfall following lack of snow last winter.

As a result Minnesota and Ontario has had to buy substantial amounts of newsprint and some ground wood pulp from outside mills. Unless unusual autumn rains occur, this situation may continue for some time. Operating profits are reduced as a result. The power available from Winnipeg Electric Company has averted a similar situation in the Kenora area.

The trustees report that the company's cash position as of September 30 is amply sufficient for its requirements. On that date current assets were $10.5 millions and current liabilities $1.3 millions. Cash totalled $5.2 millions.

The trustees report that the mill in Finland is continuing to operate in substantial volume. Unsettled conditions in Europe have largely suspended the operations of the Dutch and Danish companies and have seriously limited the operations of the English company. The latter is continuing some activity by purchasing material from the International Falls mills.

Regarding the re-organization now under way, the trustees report that substantially more than the requisite two-thirds in principal amount of bond creditors gave accent to the plan before Oct. 25. It is anticipated that a petition for confirmation will be filed with the court. The court will fix a date for hearing on this quotation, probably giving a notice of about three or four weeks. The court hearing on this petition will likely be held early in January, 1941.

Minnesota and Ontario Paper Company reports net sales of $13.3 millions in the first nine months of 1940 compared with $10.7 millions in the corresponding period of 1939. The result is that net loss for the 1940 period is reduced to $78,862, compared with $1.6 millions in the first three-quarters of 1939. The difference in the exchange situation this year, as against last was of considerable importance in this better showing.

To Reorganize Standard Paper

A final plan for reorganization of the Standard Paper Manufacturing Company as submitted by a stockholders' protective committee and approved by creditors last week had formal approval of the United States District Court here.

Judge Robert N. Pollard entered a final order to carry out a plan of obtaining an amended Virginia charter, continuing the management under the trustees appointed by the court and providing for an exchange of stock in the new corporation for holdings in the old.

The corporation, which manufactures blotting, book, writing and other printing papers, is located at Hull and Canal streets, where it employs about 350 persons.

Prior to March 4, 1937, the company became involved to the extent that there was a deficiency in working capital, whereupon it filed a petition for reorganization under the Bankruptcy Act. It has been managed since by Trustees Overton D. Dennis and Howard S. Donald under general supervision of the court.

Its financial statement as filed in the court proceedings showed bank debts under the trusteeship were reduced from $708.866 to $376,366, and working capital increased to $326,500.

The reorganized company will elect Overton D. Dennis president at a salary of $6,000 a year, and the following other officers: Robert S. Crump, chairman of the board, $6,000; James F. Ryland, vice-president, $6,000; Harry W. Deffew, vice-president, $6,000; Graham A. Carlton, vice-president, $6,000; Howard S. Donald, vice-president and treasurer, $6,000, and W. Byron Taylor, secretary, $3,000.

I. P. Declares Dividends

The board of directors of the International Paper and Power Company on Tuesday of this week declared a regular dividend of $1.25 a share for the fourth quarter of 1940 and also a dividend of $1.25 a share on account of accumulations on the company's outstanding cumulative convertible 5% preferred stock, both payable December 28, 1940, to holders of record at close of business December 20, 1940. This payment will reduce the amount of accumulated unpaid dividends to $11.25 a share.

The board of directors of the International Paper Company which also met Tuesday did not take any action with respect to dividends. However, the International Paper and Power Company has agreed to pay to any of the few remaining holders of the International Paper Company 7% preferred stock, who so wish $2.50 a share against an assignment of that amount of dividends accrued on such stock.

Hammermill Earns $1.73

The Hammermill Paper Company and subsidiaries for the nine months to September 30 reports a net profit, of according to figures filed with Securities and Exchange Commission, $395,771, equal after dividends on 4½ per cent cumulative preferred stock, to $1.73 a share on 180,000 shares of $10 par common stock outstanding at end of period.

PAPER TRADE JOURNAL
This Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 111 December 12, 1940 No. 24

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

BETTER LABOR RELATIONS

Now that the national defense program is under way the importance of a full accord between all factions of labor unions becomes of increasing importance. It is also plainly evident that a more efficient, cooperative and smoothly functioning national labor relations board is imperative to equitably settle the differences arising between management and labor. These requisites for the common good are now more realistically being considered by the Administration which is now attempting to undertake that which should have been done long ago, namely, the solution of industrial peace.

Twelve pertinent suggestions for creating and maintaining smooth and efficient labor-management relations during the defense program were made public on December 5 by the National Association of Manufacturers. The suggestions are embodied in a report of the associations employment relations committee, approved by the resolutions committee of the association and will be submitted to the Congress of American Industry which will hold a three-day session beginning on December 11.

Under the title of "Labor Relations and the National Defense Program," the committee, which is composed of 109 industrial executives from 28 States, representing both large and small concerns and many types of industries, declared: "The national defense program is not an end in itself; it is necessary to us because it is designed to supply a means of protecting and preserving the American way of life. The success of national defense program depends primarily on the production of goods; this means the employment of millions of workers. What employment problems are created; what principles should be applied in their solution? We submit the following suggestions in the belief that they are fully consistent with, and an essential part of, the American way of life; that they will speed up defense production and that they will obtain the most value for taxpayers who foot the bill for defense costs."

(1) The government should not play favorites as between employers and employees, or between different unions. (2) There should be no arbitrary interference by either government or unions with the right of employers to employ, retain and promote the most competent workers available. If employers cannot do this then they cannot produce national defense materials as efficiently as the public need requires. (3) Employers should continue to use every effort to employ workers in the occupations for which they are best fitted. (4) Employers should continue and expand the practice of paying, wherever feasible, workers according to their individual or group accomplishments, thus giving the most return to workers who produce the most for national defense.

Other suggestions are: (5) Such increased earnings as are necessary and desirable during the armament period in individual cases, should be made in the form of temporary wage bonuses rather than increases in the basic wage rates; providing, however, that the basic wage rates are not less than equal to the general wage level for similar work in the community, with due regard for the following factors: The wage for each job being determined in relation to all other jobs in the plant, with due regard for skill, responsibility, experience, physical demands and hazards which the job requires. (6) Employers should endeavor to augment the supply of skilled labor in occupations where shortages now exist or are threatened, giving as diversified training and work-experience as is practical.

Additional recommendations are: (7) In the interests of safeguarding national defense production, employers should carefully review the citizenship status, the job requirements and the physical and mental qualifications of their watchmen and guards. (8) In the interests of preventing espionage and sabotage employers in national defense industries should provide adequate checking or indentification of those admitted to company premises as employees or in any other capacity. (8) Labor unions should abandon or suspend rules and practices which prevent maximum production by individual workers. (9) Jurisdictional disputes between rival unions in national defense industries should not be permitted to obstruct defense production; they do not involve any real differences between employers and employees, and the employer, since not a party to the dispute, is helpless to end it. (11) When disputes between employers and employees arise in national defense industries attempts should be made to mediate them in a manner satisfactory to both employers and employees before either a strike or lockout occurs. (12) In the World War the committee on labor of the council of national defense declared on April 2, 1917, as its first national labor policy, that the status

quo in bargaining relationships between employers and employees should be maintained during the conflict. We are not now at war, but the national defense program is of major national importance, and we believe that again, in the interests of national defense the status quo in bargaining relationships should be maintained so long as the preparedness program is a major national policy."

The comprehensive and constructive recommendations of the committee also include government action in the field of employment relations, specifically covering the points of sound employment relations, government protection of the right of workers to bargain individually or collectively through representatives of their own choosing and the rights of courts to issue injunctions in labor disputes. In concluding the report pointed out that, "Any legislation affecting the relations of employer and employee should in its provisions and administration observe the constitutional rights of free speech, rights of property and the right to work or not to work, in like manner and to the same extent that those rights are commonly enjoyed by other classes of citizens. Government owes the same duty to industrial taxpayers as to all other taxpayers to protect them in the right to peaceful occupation and use of their property. To conform with the foregoing principles and to aid national defense by removal of unnecessary obstacles, we urge that the Federal Wage-Hour Law be amended promptly to remedy its basic defects and that the National Labor Relations Act be amended promptly to cure its defects of substance and administration."

Pulp to be Used as Cellulose Fodder

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 11, 1940—With a view to meeting to the greatest extent possible Norwegian requirements during the coming months, the Administrative Council recently took steps to secure from local chemical pulp mills 100,000 metric tons of chemical pulp, which will be used as cellulose fodder, according to a report from the office of the American Consul, Oslo. Experiments were made with this product some years ago, which however proved unsatisfactory due to the high cost of the finished article. Now that the question of maintaining Norwegian live stock is of such vital importance, an adjustment with regard to price is being made. The pulp is to be delivered throughout the fall and winter in bales. The flakes are soaked before given to the animals. Considerable importance is being attached to the new substitute. It is stated, however, that it lacks albumen, vitamins and minerals but that these may be had from herring and fishmeal.

Paper Stock Prices Seasonally Weaker

BOSTON, Mass., December 9, 1940—Prices of paper stock are seasonally weaker at this time of the year, but in the absence of much business are largely nominal. Not much change is expected until after January 1.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	83.9%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.3%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	91.8%	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	93.8%	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	87.1%	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	87.2%	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	83.3%	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	88.2%	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	87.5%	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 48 weeks	87.9%	84.4%	72.2%	83.0%	81.1%	70.5%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
October 26	88.5%	October 28	97.9%
November 2	88.6%	November 4	98.0%
November 9	88.0%	November 11	98.1%
November 16	87.9%	November 18	98.4%
November 23	87.0%	November 25	96.2%
*November 30	87.0%	December 2	95.1%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Oct. 26, 1940	Nov. 2, 1940	Nov. 9, 1940	Nov. 16, 1940	Nov. 23, 1940	Nov. 30, 1940
0% to 50%	45	45	50	53	47	47
51% to 100%	249	248	241	231	234	187
Total Mills Reporting	294	293	291	284	281	234

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	76%	79%	72%

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	74%	72%	79%	77%	....	....

Week end. Oct. 26, 1940—80% Week end. Nov. 16, 1940—77%
Week end. Nov. 2, 1940—80% Week end. Nov. 23, 1940—77%
Week ned. Nov. 9, 1940—78% Week end. Nov. 30, 1940—76%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.
* Preliminary figure.

Turkey Limits Pages of Newspapers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 27, 1940—Due to the fact that the importation of paper under the present circumstances has been rendered difficult, the Turkish government limited the number of pages of the newspapers published in the country, according to a report from the American Commercial Attache, Istanbul.

In order to prevent a shortage of paper on the domestic market, the Council of Ministers has issued another emergency decree whereby the Agricultural Bank of Turkey is authorized to establish a paper stock by making imports from abroad and to distribute it to consumers.

A sum of 300,000 Turkish Pounds is placed at the disposal of the Bank for the carrying out of this project. This sum is allotted from the general appropriation of 25,000,000 Turkish Pounds.

They Started Something!

THE EXPERIMENTS of Sir Humphrey Davy were of inestimable importance in the course of industrial progress, in the relief of suffering, and in the preservation of life. When he first prepared metallic sodium by the electrolysis of alkalis, he gave industry a new raw material which today is constantly finding wider application. His discovery of the effects of nitrous oxide eventually paved the way for the development of anesthesia and gave science a potent weapon in the war against pain. Countless lives were saved when he found that a cylinder of wire gauze surrounding a flame prevents the flame from igniting explosive gases. This was the principle of the safety lamp that substantially reduced explosion hazards in the mining industry.

Both industrial progress and human health benefited immeasurably also from the work of the EBG engineers who first made Liquid Chlorine commercially available in America. EBG Liquid Chlorine gave municipal health authorities a new and effective method for controlling the spread of water-borne diseases, for assuring the purity of water supplies —and more recently for sterilizing sewage as an added safeguard to public health. The manufacturers of paper and textiles were enabled to set new standards of efficiency and economy through the use of EBG Liquid Chlorine as a bleaching agent. Pioneers in Liquid Chlorine production, EBG engineers have long experience in its manufacture and servicing — experience that works for you when you specify EBG Liquid Chlorine.

The first cylinder of Liquid Chlorine made by EBG in 1909.

ELECTRO BLEACHING GAS COMPANY
Main Office: 60 East 42nd Street, New York, N.Y.
Plant: Niagara Falls, N. Y.

EBG Liquid Chlorine
FIRST IN THE COUNTRY

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Hydrogenation of Lignin*

By Elwin E. Harris[1]

Abstract

Experiments in hydrogenation of lignin in dioxane and in aqueous suspensions in the presence of an appropriate catalyst are discussed. Hydrogenation of lignin in dioxane yields propylcyclohexane derivatives. Insoluble lignin obtained from wood by hydrolyzing the carbohydrates with acid gave similar hydrogenation products.

Work on the hydrogenation of lignin at the Forest Products Laboratory has two main objectives: the first is fundamental, the discovery of the building units of lignin; and the second, the discovery of a manner of converting lignin into useful products that will take their proper place in commerce. Developments in the latter up to the present time may best be described as hopeful, because no commercial use has been found for these products.

Considering the structural aspect of lignin, hydrogenation of lignin has given results that will eventually lead to a more definite concept of the nature of lignin than any of the other attacks previously used because it gave the highest yield of identifiable products that are not complete decomposition products. It is believed that these products have a real relationship to the structure of the parent molecule. The products from this hydrogenation form a new series of compounds related to the terpenes on the one side, because they have six carbon rings that are saturated, and to the normal propyl substituted plant oils on the other, because the side chains are straight chains rather than branched. None of the work up to the present time has indicated the presence of phenolic substances in lignin.

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Seattle, Wash., Aug. 20-23, 1940.

[1] Chemist, Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, Madison, Wis.

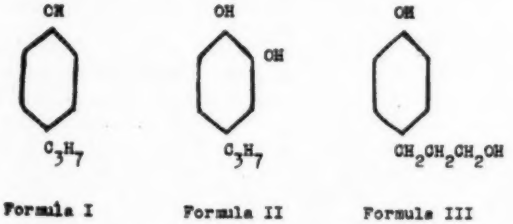

FIG. 1

Compounds Derived from Lignin by Hydrogenation.

Catalysts Employed

Table I *(1)* gives the yield of the hydrogenation products when the isolated lignins are hydrogenated in dioxane solution, using a copper chromite catalyst.

Since the completion of that work, it was found that the addition of lime to the reaction mixture aided in the conversion of lignin into the cleavage products.

Insoluble lignin obtained from wood by hydrolyzing the carbohydrates with acid gave similar hydrogenation products.

When this process was applied to isolated sulphite or sulphate lignin, the sulphur content acted as a poison to the catalyst. However, it was possible to reduce the sulphur to hydrogen sulphide and mercaptans, boil these off, and then hydrogenate the resulting sulphur-free product in the same manner as soda lignin. The same general products were obtained.

Referring again to Table I, item 1 the only unidentified product is the high-boiling resin which was 22% of the total hydrogenated products. This resinous material is now being investigated and is believed to be similar to the *n*-propylcyclohexane derivatives, which are shown in Fig. 1.

Water may also be used as the medium for the hydrogenation of lignin *(2)* in which case nickel is used as the catalyst. The products are related chemically to those obtained in dioxane but the spliting off of the methoxyl groups is less and, consequently, some methoxy compounds result from this hydrogenation. It is thought that the position of these groups on the propylcyclohexane ring will be helpful in establishing the formula of lignin.

At higher temperatures hydroxy and methoxy groups are removed and the hydrocarbon, *n*-propycyclohexane, is an important product which, referring to Fig. 1, would correspond to formula I with a hydrogen in place of the OH group.

TABLE I.—PRODUCTS RECOVERED

Material	Methanol %	*N*-propylcyclohexane and its derivatives %	High-boiling resin %	Water %
Aspen lignin by methanol	26.5	38.2	22.0	11.0
Soluble aspen lignin by sulphuric acid	19.1	23.0	48.0	9.0
Aspen lignin by soda process	10.5	14.4	66.0	9.0
Insoluble aspen lignin by sulphuric acid	15.0	22.0	50.0	10.0
White spruce lignin by methanol and hydrochloric acid	15.0	21.0	52.0	10.3
Black gum lignin by soda process	11.0	20.0	60.0	10.5

TABLE II.—HYDROGENATION OF WOOD IN AQUEOUS ALKALINE SOLUTION

Kind of wood	Weight of sample grams	Water cc.	Alkali grams	Initial hydrogen pressure lb. per sq. in.	Temperature deg. C.	Time hours	Yield of products (% of original wood) Pulp %	Methanol %	Propyl alcohol %	Propyl cyclohexane derivations %	Resin %	Residue not identified %
Aspen	30	300	3	1000	170	3	44	3	10	(1)	17	20+
Aspen	30	300	2.5	3000	180	4	40	5.1	16	20	14	2
Maple	30	300	3	3000	175	4	45	4.9	16	18	15	3
Slash pine	30	300	4.5	1000	175	1.5	44	2.5	8	(1)	24	20+
Aspen	30	300	3	3000	200	12	none	4.6	16	(1)	20	(1)
Red gum	30	300	3	1000	175	3	42	3	11	(1)	17	22

(1) Determination not made

Figures 2 and 3 show two types of equipment used for the hydrogenation work.

After hydrogenating lignin in water, the next step tried was to hydrogenate the lignin in wood chips to produce hydrogenated lignin products and a pulp *(3)*. Table II gives the results from such a study.

Pressure and Temperature

Complete conversion into oils and water-soluble products results from the hydrogenation of wood chips at 250 deg. C. and hydrogen at 3000 pounds initial pressure, corresponding to about 5000 pounds pressure at 250 deg. C. Methanol, propyl alcohol, and reduced carbohydrates are found in the water-soluble products. The oils have been fractionated and those that have been identified belong to the propylcyclohexane derivatives.

At lower temperatures and pressures it is possible to control the extent of the hydrogenation so that only a small amount of hydrogen is taken up. In this case a pulp remains. The properties of this pulp are now being tested by the pulp and paper division of the Laboratory to determine its physical properties. It is low in lignin, and has about the same chemical composition as sulphate pulp.

The lignin, which is only partially hydrogenated, may be recovered by saturating the filtrate with carbon dioxide. This partially hydrogenated lignin may then be further hydrogenated in aqueous solution in the presence of a nickel catalyst.

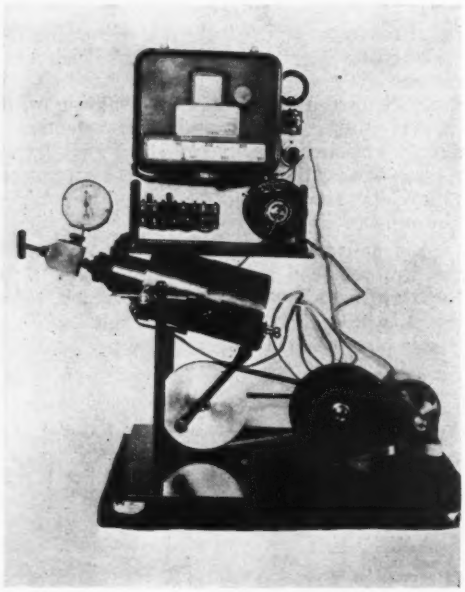

FIG. 2
Small Hydrogenation Bomb

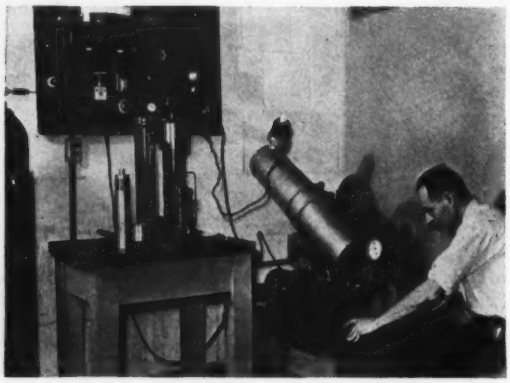

FIG. 3
Two-Liter Hydrogenation Bomb.

Applications for public patents covering these processes have been filed.

Conclusion

Hydrogenation has resulted in a better knowledge of lignin and some of these developments may have commercial significance in the future. Work is being continued as fast as time and man power will permit. Perhaps a better knowledge of the lignin molecule will make it possible to produce many other such derivatives and these will aid in the developments for the fullest commercial use of lignin.

Literature Cited

(1) Part of a report presented before the Amer. Chem. Soc., Boston, Mass. (1939) by Harris, E. E., *Ind. Eng. Chem.* 32:1049 (Aug., 1940).
(2) Harris, E. E., Saeman, Jr., and Sherrard, E. C. Ind. Eng. Chem. 32:440 (1940).
(3) Forest Products Laboratory report: "Simultaneous Production of Wood Pulp and the Conversion of the Noncellulosic Constituents of Wood into Alcohols, Oils, and Resins," (Feb., 1940). Mimeograph R1218.

"The Southern Forests"

The National Resources Planning Board has just issued "The Southern Forests," which is a brief report on the conditions and possibilities of forests and forest industries in the South.

The report points out, among other things, that a Southern forest program, to be of most value to the Region, must be designed to accomplish three things: First, the forests of the South must be utilized to their full value. Second, they must be conserved in order that the Region may continue to have forest resources to develop. Third, the use of these forest resources must be related to the needs of Southern communities and to the economic life of the Region as a whole.

Copies of the report may be had by applying to 520 New Post Office Building, Atlanta, Ga.

Vocational Instruction at Camas*

By O. T. Defieux[1]

Abstract

A four-months course of "paper school," was started seven years ago, for the benefit of the employees in their self-education to obtain a better knowledge of the pulp- and papermaking process. The growth of the original idea into a "four-year" course of instruction is described.

Vocational training is fundamentally that part of an education whereby a person earns his livelihood. As we turn the pages of history we find that the necessity for such a training has existed from the days of primitive man. It is reasonable to presume that before the family stage of human history, man learned to fish and hunt by his own efforts, and his success was the measure of his ability to survive. Later when men began to live together, the younger persons received their training by observing and imitating the more successful hunters of the tribe. With the establishment of home life, agriculture and simple homecrafts came into being, and as the necessity arose for educating the children, then the fathers became the first teachers of these simple crafts.

With the development of community life came the distribution of labor and those more proficient in the various arts and crafts became specialists in these services. Further progress demanded that these specialists train the younger members in their respective crafts. In later centuries these specialists organized themselves into guilds and established a system of apprenticeship. This was history's first organized form of vocational training.

At the time of the founding of the American colonies the old craft guilds were no longer important in Europe, having been replaced by a newer class of merchant manufacturers operating on a much larger scale with concentrated production. With this form of industry a state-controlled apprenticeship system had replaced the guild system. This new practice was adopted by the American colonies and existed through the early days of the republic. The tremendous industrial expansion in the United States of America during this twentieth century with the specialization of machinery and processes have further contributed to the decline of the apprenticeship system, partly because many industrial plants required their own peculiar specialized skills and methods of work.

These conditions have stimulated the growth of corporation training activities. Started by R. Hoe & Company, New York, manufacturers of printing presses in 1872, it has developed to the extent that many of the larger industries today are carrying on some form of organized vocational training. In many cases the training is of a highly specialized nature and is often compulsory.

Administration

In 1933 the executives of the Camas mill of Crown Zellerbach Corporation outlined a program of vocational training relative to the paper industry. It was thought that an opportunity should be made available for such employees who wished to extend their knowledge of the industry and that this could be better accomplished under an organized training program.

It was planned to provide a one-year training course, the opportunity for registration being unrestricted. An administrative board was established, one of the mill executives being appointed dean and a series of 18 lectures was programed. These lectures covered general mill operations, from wood structure and preparation, through the various pulping processes, paper machine operation, paper converting. The final subjects were "mill organization" and "management and problems."

The executives, superintendents, and foremen offered their services as instructors, and thus the paper school was started. Contrary to precedent established in most such ventures the beginning was not humble. A total of 185 students registered that first year and those completing the course were insistent that they have an opportunity for advanced work, and in addition there was a large demand on the part of other employees to begin the course. Therefore it was decided to continue the school each winter adding additional courses as the demand arose. At the end of the first four years a full four-year course had become an accomplished fact.

Registration is unrestricted and consequently the educational qualifications of our first year students will vary from a grade school education to that of a doctor's degree in science or engineering. As originally presented the first year lectures in general required some previous technical training to allow of a reasonable appreciation by the student, and we have attributed to this cause the lowest percentage graduating class of our entire experience. The extension to a four-year course has allowed the administration to revise the curriculum therefore to considerable advantage.

After seven years of continual operation the Camas paper school now has an administration board comprised of:

Board of Regents	4
Dean	1
Principal	1
Vice Principal	1
Registrar and Secretary	1
Assistant Registrar	1
Professors (1 each course)	4
Advisory faculty board	4
Mill instructors (additional)	23
Outside instructors	12
Property men	3

The registration records for the seven years are as follows:

		1st Year Course	2nd Year Course	3rd Year Course	4th Year Course
1933	Enrolled	185	..	..	..
	Completed	55	..	..	..
1934	Enrolled	52	65	..	..
	Completed	30	38	..	..
1935	Enrolled	92	35	25	..
	Completed	49	27	23	..
1936	Enrolled	110	44	26	19
	Completed	58	27	20	14
1937	Enrolled	124	50	17	20
	Completed	67	32	14	16
1938	Enrolled	141	69	34	19
	Completed	94	55	29	18
1939	Enrolled	121	84	46	25
	Completed	91	68	33	25
Completed 1939		75%	81%	72%	100%

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Olympic Hotel, Seattle, Wash., Aug. 20-23, 1940.

[1] Steam Engineer and Plant Superintendent, Camas Mill, Crown Zellerbach Corp., Camas, Wash.

School Equipment

No charges whatever are placed upon the student, complete financial support being provided by the corporation to the extent necessitating a separate annual budget item for the paper school. This has provided the needed facilities as meeting halls, projecting equipment, motion picture equipment, and numerous incidentals. In 1939 a well illustrated and handsomely bound textbook was compiled comprising 39 chapters with a total of 519 pages of printed material. Each of these chapters deals with some special phase of the pulp and paper industry and was written by the executives, supervisors, and members of the technical department of the Camas mill. These text books are loaned to the students during the period of their training without charge. A first edition of 600 copies has been printed and an additional 500 copies are now on the press.

Each year prior to the start of the classes the dean, the principal, the four members of the advisory faculty board, and the four professors meet to discuss desirable changes in the curriculum to increase the educational value of all of the four-year courses. Statistics to date show that improvements have been made and it is the consensus of opinion of this group that continued progress must be made to maintain the desired interest.

Courses

The present schedule offers an interesting example of how a simple one-year course has developed into one of the most complete programs of optional education under corporation training activities.

The first-year course now consists of 18 1.5-hour lectures including ½ hour of discussion. The first four lectures deal entirely with the fundamentals of elementary chemistry, general physics, mechanics, and electricity followed by general lectures covering the history and evolution of the pulp- and papermaking processes and others relating to the functions of the various auxiliary departments. Laboratory equipment is used for demonstrations where possible and slide projecting equipment proves a boon to both student and the lecturer. Four written examinations are required and the final grading is prorated 60% on examinations and 40% for attendance.

The second-year course is comprised of a series of 16 lectures specializing on pulping and papermaking processes as specifically carried out in the Camas mill, complete kodachrome motion pictures have been taken of these operations in the Camas mill, and are used in illustrating the lectures in this second-year course. All students are required to attend a two-hour supervised visit in each of the four major departments: (1) wood preparation plants; (2) sulphate pulp plant; (3) sulphite pulp and screening plant; and (4) paper mill. Three written examinations are required. Both first and second year examinations may be written at home and reference books or notes may be used.

In the development of the third-year course departures from the methods employed in the previous years have taken place. Here only four formal lectures are given and those by outside speakers. These are on subjects such as (1) conveying materials, (2) combustion, (3) metallurgy, and (4) filtration processes. The lecturers are either members of the technical staff or representatives of manufacturers in allied industries. Each student is required to spend four hours per week, a total of 64 hours, in mill study, allocated 16 hours each to woodmill, kraft mill, sulphite mill, and beater room operation, in regular progression. Four evenings are devoted to general open discussion of problems in these departments, the supervisor of the department in question taking the chair. The mill studies as required of this class are on an entirely different basis than the supervised mill visits of second-year course. Now the students are required to follow through on the entire process from incoming raw materials to the finished product. Questions may be asked of the supervisor or any operator on duty. The schedule is so arranged that the evening for general discussion of the process follows 12 hours of mill study. This allows the remaining four hours of mill study time for a recheck before the examination covering this process is to be held. All of the examinations are written in the class room and the use of reference books or notes is prohibited.

In the fourth-year class a similar program is followed, the lecture subjects being: (1) principles of hydraulics, pumps and pumping; (2) heating, ventilating and air conditioning; (3) evaporation; and (4) instrumentation. The four mill processes which form the basis for mill studies, general discussion and examinations are (1) paper machines, (2) finishing rooms, bag factory and converting plants, (3) steam, electricity, and maintenance, and (4) technical control.

Graduation

At the end of each school year a graduation banquet is held and first, second, and third, and final fourth-year diplomas are presented to those students who have made the necessary grades in their respective classes. Prizes are presented to the two highest honor students in each class, the prize for the two fourth-year students being a week's trip to the Pacific northwest paper mills at the company's expense.

A complete card index covering attendance, grades, etc., is maintained on all students who register for the paper school, this information being available for the mill manager, personnel department, and supervisors.

Conclusion

In evaluating the results after seven years of experience, we ask: primarily what has it done for the student. Without doubt he is a more intelligent person and this additional intelligence is applicable to the vocation he now follows and which he may follow for many years to come. The mill study phase of the training is an exceptional opportunity to develop his powers of observation. He is possessed of a greater self confidence which allows him to perform his duties in a more intelligent manner. He is more able to realize the importance of his own personal job, and that of his department, in the continuity of mill operations.

Many of the graduates have received promotion, some of which could be directly attributed to this opportunity for vocational training. Others undoubtedly would have received promotion irrespective of this training. It has provided a common meeting ground between student employees and the mill executives and supervisors which otherwise would not exist. It has been an incentive to supervisors to learn how to more ably express the knowledge they have accumulated through years of education and practical

experience. This factor must have an appreciable value in respect to the normal training of employees in his department in their regular duties.

There is a certain interesting reaction to this paper school by nonstudent employees which has been brought to light by the mill visits of the third- and fourth-year classes. The students often times ask questions of the operators which they are not qualified to answer. The embarrassment thus caused has resulted in the only reasonable defense available which is the operator, in order to maintain his self-respect goes out and finds the right answers. Occasionally the result of such a situation is a new student for our next year's paper school.

Forestry and Engineering in Using the Forest Crop*

By W. H. Price[1]

Abstract

The practical viewpoint of private forest management toward the production of timber for wood pulp is given. The advantages and limitations of the Pacific northwest timber resources in the establishment and operation of pulp and paper mills are discussed.

Men really began to use the forest crop of the Pacific northwest in 1823 when a sawmill saw first bit into a Douglas fir log at Vancouver, Washington. The use of the companion trees of cedar, spruce, and hemlock followed commercially as the decades rolled by.

Trees and Industry

Upon this use of the Douglas fir forest crop a great industry has been built; an industry which gives employment to over 60% of the industrial workers of the Pacific northwest; an industry which furnishes the railroads with 67% of their outbound freight traffic, which gives the steamships 80% of all the freight they haul from this area; an industry which supports more than one third of the entire population. The creation and perpetuation of this industry, based upon the use of the forest crop has commanded the services of strong men, men of courage and vision, men of power and energy, men of ingenuity, men in the offices, in the laboratories, in the woods and in the mills, and men at every crossroads—men who would not be stopped by any obstacle.

When the Civil War was at its height in 1862, Congress passed the Morrill Act, introduced by Senator Morrill of Vermont. It set in motion one of the most ambitious educational programs the world has ever known, a program based to a considerable extent upon the use of the land and of the forest crop on that land. This Morrill Act established the land grant colleges, so-called because United States public lands were used to finance the founding of universities and colleges. This act did three things: (1) it granted to each of the states 30,000 acres of land for each senator and 30,000 acres for each representative, based upon the census of 1860; (2) the leading object in the establishment of these universities shall be "without excluding other scientific and classical studies and including military tactics, to teach such branches as are related to military training and mechanical arts." It was also stated in the act that these colleges were to provide "a liberal and practical education of industrial classes in the several pursuits and professions of life," and (3) the money procured by the states from the sale of these lands and this timber, had to be invested, according to the act, in federal bonds or in stocks yielding at least 5%. Only the interest on this endowment fund could be used for educational purposes and if the money was dissipated by the states for any reason, the states were required to make up the losses by public appropriations from the state treasury.

Through this act over 11,000,000 acres of land were appropriated to the states for "land grant" colleges. Speed characterized the action of the several states in disposing of the lands and the timber when it was received from the Federal Government. However, it is interesting to note that some of the states still hold some of the original land. The states of Washington and Oregon together received 180,000 acres under the Morrill Act.

Fifty-two colleges have been established throughout the United States by this fund, among them Cornell, Massachusetts Institute of Technology, University of California, University of Oregon, State College of Washington. These 52 colleges and universities today cover a land area of 119,000 acres, possess 3,500 buildings and have for experimental purposes 67,000 acres of forest and agricultural land. The value of these institutions in 1928 was $427,000,000. The students enrolled totaled 2300 in these colleges in 1882, today there are over 160,000 students, and during the three quarters of a century which has intervened since the act was passed 400,000 degrees have been awarded by these institutions. Thus it will be seen that education in America has, to a considerable extent, stemmed from the use of the forest land and the forest crop. Today in the states of Washington and Oregon the use of the forest crop brings substantial revenue to support our schools and colleges. From the original Morrill Act and subsequent acts the state of Washington received a total of 2,800,000 acres. From the sale of timber and land to the amount of 500,000 acres the state of Washington has built up a permanent fund of $35,000,000, the interest on which goes towards the support of schools. The state still has 2,300,000 acres.

Crazy-Quilt Ownership

The problems which we face today in using the forest crop to its fullest measure are rooted deep in the history of our country.

When the public domain was parceled out as an in-

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centive to attract people into the far places for the settling of a continent, the emphasis was placed upon the quickest and best utilization of the land at that particular moment. Little or no thought was given to planning for future forest crops. The Northwest Land Survey System, originating in 1785, was designed to divide land into mile-square parcels regardless of topography, drainage, or value. The Preemption Act of 1841, the Homestead Act of 1862, the Desert Land Act of 1877, and the Timber and Stone Act of 1878, all were designed to hurry up the settlement of the western country. Speed was the slogan—there was no time to think of long-range programs for timber utilization.

The railroads were potentially the great unifiers of the continent. They had pushed their lines part way across the nation, ran out of cash and were marking time. They needed money and they needed it quickly. Where and how could the railroads find the wherewithal they could use so handily? The continent was covered with timber. This timber belonged to all the people—all the people as exemplified by "the government." The people wanted the continent bridged quickly. Wasn't there some way this timber could be used? They reasoned this way—if the railroads had some of the people's timber they could sell it for cash. Probably the railroads would do business quicker and better than "the government." And so, under the Railroad Land Grants—really a help-settle-the-continent-subsidy—land was traded to the railroads, by the people through their government, in the form of alternate mile-square sections in strips 20 to 40 miles wide on each side of the right of way, in return for which the railroads were to extend their lines and thereby develop the country. In other words, these railroads, these bridgers of the continent, these unifiers of our nation received the red squares in a vast continental checkerboard.

The railroads were expected to sell these lands quickly, thus providing cash for the financing and completion of their transcontinental building programs. And, every foot of the continent must be settled quickly by the men and women of America, before the men of other nations claimed it. The railroads offered this land for sale for cash, and Frederick Weyerhaeuser and his associates were among the many purchasers. With the money realized from sales, the hard-up railroads completed their part of the bargain with the federal government by binding the west to the east with steel. A continent was united geographically and a nation began to flex its muscles.

Solving the Ownership Pattern

In using the forest crop the private timber owner is confronted today first with the Herculean problem of rearranging this patchwork ownership into an orderly tree farm that will supply a thousand men in a given town with permanent employment at the job of helping to furnish the American people continuously with forest products. Weyerhaeuser Timber Company has met this situation by cooperating with other private owners in the merging of forest lands into a common pattern so that the men and the management of already existing mills, and the communities which surround these mills, can look with greater confidence to a more secure future. This action has insured longer life for a number of towns in western Washington. Much has been accomplished in this direction, but there is still a long way to go.

In the state of Washington 56% of all the forest land is owned by public agencies, and if this complex problem of ownership is to be solved in the interests of all the people, cooperative arrangements must be made between public and private timberland owners.

Solving the Natural Growth Pattern

But, this patchwork policy of land disposal which developed with our western frontiers is only one of the problems that the loggers must face in using the forest crop to the best advantage. Forest fires, insect ravages, windthrow, fungi, and many other natural causes which have been going on for many centuries have made our virgin forests vary from tree to tree and from acre to acre so that the ownership pattern, while complicated, is nothing compared to this natural crazy quilt. Our western forests are composed of a variety of different kinds of trees, growing together, side by side, branch to branch, root to root, Douglas fir, hemlock, spruce, cedar, white fir, and noble fir, each with a widely different utility. These stands vary in density from 20,000 to over 100,000 board feet per acre and the proportion of each species in the stand is never the same. The result of all this is that the greater percentage of the area in the Douglas fir region is now composed of an overstory of old growth fir with an understory of the more tolerant species, such as hemlock, cedar, and spruce. Again, repeated fires of the past have caused Douglas fir to grow up in even-aged stands. Much of the timber in many of the areas has grown up in a limby condition producing a poor grade of lumber, while in other areas the timber is clean and the lumber grade produced is of high value. On still other areas the timber is defective and often worthless because of rot. And so, the commercial value of timber varies widely from area to area and from tree to tree and from log to log.

Systematic Inventories

Because of this varied condition of our forests, and because of the fact that the location of logging would inevitably move from the valleys to the steeper mountain slopes, it was found necessary early in the life of Weyerhaeuser Timber Company to make systematic inventories, to map the varied topography, and estimate the volume and grades of timber. In the early days the work of the cruiser was crude, his maps were rough, his estimates cursory and approximate. His work today is accurate, his topographic maps are of high engineering caliber.

Fact Finding

We are conducting experiments today in various types of timber which will lead us towards more accurate methods of inventorying our stands to ascertain what quantities there are on our tree farm in the shape of shingles, lumber, pulp, plywood and fuel. On one area of approximately 1200 acres of old-growth timber we have made a 100% cruise and tagged each tree so that the individual logs can be followed through the manufacturing processes. The facts we derive from this experimental area will be used to increase the precision of our inventorying methods on many areas.

On another area of approximately 1200 acres of second-growth Douglas fir we are carrying on experiments to arrive at the best forest practice in this type of timber.

On still another experimental area consisting of even-aged spruce and hemlock, we are selectively log-

ging some of the trees. We will then study the remaining stand with a view to determining whether or not it is good business to apply this type of cutting to wider areas. The facts derived from these studies constitute a valuable contribution towards improving utilization methods. Results obtained from this experimentation will be applicable to the various operations when, in the cycle of events, we will come to logging second-growth timber.

In our intensive study of an operating area not only do we have to know about the species, size, value, and grade of the timber, but likewise we have to make and assemble topographic maps. The kind of equipment that will be necessary to harvest the timber depends, of course, upon the condition of the terrain, which in turn may dictate the degree of utilization and the types of timber which can be profitably logged. Dense timber in steep country usually requires railroad logging, going hand in hand with steam and cable yarding. Scattered timber on easier slopes may permit truck logging with tractor yarding. Our foresters and engineers are continuously making maps and studying areas with all of these possibilities in mind so that our decisions can be made just as nearly as possible with scientific precision.

Harvesting our present crop of mature timber is but a part of a continuous cycle of cutting, of seeding, and of regrowing timber so that the men and the management of our company will be in a position to furnish society with uninterrupted supplies of forest products. Forestry is not something separate and apart from the timber business. We cut a tree today because its value is greater now than its potential value will be if left for a future harvest. A mature tree is not growing to any appreciable extent; often it is decaying at a rapid rate which means that it costs money to leave it standing. It is good business for society to cut and use this tree and make way for a vigorous new tree. Foresters look at a stand of timber not as something sacred to be preserved for posterity, but he looks at it as an accumulation of many different grades and sizes of trees, each with two price tags—one tag upon which is written the value of the tree if logged today and the other tag its value if logged ten, fifteen, or fifty years hence.

Fire

We have touched upon the development down through the years of techniques of evaluating our timber stands and methods of engineering followed in long-range operations. This whole program falls to the ground if we do not solve the menace of fire. In spite of decades of experience we never know just when or where a fire is going to strike the forest crop, but we may always be fairly certain that when it does strike it will travel at lightning speed, often in the opposite direction to the one we had expected it to take. It starts, turns with the wind, goes back upon itself and completely reverses its course destroying logging camps, timber, young trees, reforesting lands, cold decks, yarding engines, sometimes towns and villages, and occasionally lives are lost by the attacks of the enemy no. 1 of the present and future forests. All talk of sustained operations, roadside beauty, timber is a crop, renewable resources, is idle unless fire is kept away from all trees, young and old. Progress has been made in the prevention and suppression of fires, but there is still wide room for improvement. The cooperative program designed to unite all the people of our commonwealth in a state-wide campaign of education to "Keep Washington Green" has already produced tangible results and gives a strong lead as to how to approach the solution of the other forest problems.

Taxation

No discussion of the use of the forest crop would be complete without some mention of the problem of taxation. The pressure of taxation upon owners of small tracts of timber to liquidate their holdings in short order is understandable. This pressure forces many owners to take the tenderloin and leave the rest of the animal to waste away. It is not necessary to stress the fact that this, from the point of view of the total economy of the Pacific northwest—past, present and future—is short-sighted, inefficient utilization of that portion of the timber crop so handled. It should be emphasized that through this pressure process distressed owners are forced to salvage what they can from their investment. This is bad business all the way around.

The ingenuity of many experts has been challenged in trying to find an equitable taxation system because timber is a crop which takes not a year, but a century to ripen. I believe that it is perfectly fair to say that no signal which has yet come out of numerous huddles is the one that the whole team wishes to follow. However, it may be that reducing tax rates during the time the trees are growing and producing no immediate income for the owners, and raising the tax rates at the time the crop is harvested and producing immediate revenue, may be one way out. Every time we find a way of improving the forest taxation system in the interests of the owner, the worker and the consumer we thereby stimulate a more orderly utilization of the forest crop and widen the area of opportunity for planning for future forest crops.

An Integrated Operation

Our Longview operation presents an excellent example of the integrated use of the forest crop. Here the company has a tree farm sufficient in size, and with a reasonably good balance of old-growth and new forests, to permit planning operations in perpetuity. Fifteen years ago, when it seemed the time had arrived to begin the systematic use of the forest crop at Longview, the management designed and built manufacturing plants that would make the best possible use of the stands of timber in the light of the knowledge possessed at that time. Through intensive research in these 15 years we have expanded our program of utilization at Longview by using hemlock, which has, up to now, been somewhat of a stepchild in the forests. Now hemlock goes to the pulp mill. Research in the laboratories of the pulp and paper industry has done more probably to expand, and develop and widen the uses of the forest crop than has the work done at any other point on the forest products industrial front.

Research and Planning

Growing out of this research and planning we have today at Longview a pretty well integrated use of the forest crop. Logs for the Longview mills are harvested on the slopes of Mt. St. Helens. These stands are approximately 70% Douglas fir, 20% west coast hemlock, and 10% western red cedar. Logs are hauled by locomotive, 50 miles to the Columbia River

where they are dumped, sorted, and routed to the sawmills according to species, size, and grade. The large fine-grained, soft, old-growth yellow fir logs are sawed in Mill 1, where high quality lumber is produced. Mill 2 manufactures the smaller type of Douglas fir logs which are admirably suited for such products as structural timber and framing lumber for house construction. Mill 3 is a very adaptable unit which saws cedar and hemlock logs. The cedar is used for the company's western red cedar exterior sidings and shingles. The hemlock logs, after a small percentage of the clear lumber has been removed, are broken down into cants or pieces which are conveyed to the pulp mill adjacent to Mill 3. The chips are conveyed on bolt conveyors to the chip bin one half mile away. This bin holds four days supply and is so constructed that effective blending of the chips is accomplished before they are conveyed to the digesters. These chips are converted into bleached sulphite fiber by the usual chemical process.

Careful, qualitative, and quantitative measurements are made at every step of the pulp manufacturing process. As a result of this careful study of the recorded factors in the manufacturing process, problems arise and opportunities for research open up which are turned over to the research department. Here they are worked on by scientific men, resulting in more effective means for the conversion of wood into a pulp quality to meet the evermore exacting demands of consumers, and into new products as well. This evaluation of operating conditions, going hand in hand with operating research, leads to a better utilization of more of the materials available in the forest as well as the recovery of byproducts.

The shingle mill has 14 machines to saw shingles out of blocks cut from the red cedar logs produced in Mill 3.

Shavings planed off fir lumber are taken to the presto-log plant where they are compressed into fuel to be used for heating and cooking.

We Use the Crop as We Find It

We are today endeavoring to use the forest crop as we find it. Confronted with multiple ownership; faced with widely variegated assortments of raw material; up against a national economy that permits foreign products to easily invade the home market, it has been no easy task to integrate the growing, converting and selling of forest products to the world.

At the beginning of this paper I mentioned the far-flung front held by the forest products of the states of Washington and Oregon. These positions have not been taken easily, they have had to be stormed and conquered by a sales organization of trained men whose jobs was first to convince the American people that timber is a crop and that they wanted forest products made from these crops and not substitutes; and secondly that the products produced by our company are synonymous with quality, price, service, and permanence.

Lavish Utilization—1820 to 1876

The men of the growing colonies went one step further than the Pilgrims—they not only used the forests incidentally, they used them for buildings, for fences, ships and railroads. They demanded building material in unheard of quantities and the men of the lumber industry responded and furnished the American people with the largest amount of fine building materials at the cheapest prices the world had ever known. The demand of the people for speed in the use of the forest crop is reflected in the policy of the government of the United States which held out the forests as a bait, as an incentive to men and women to go out among the trees and subdue them and settle the continent—and settle it quickly.

This was the era of "lavish utilization"—a natural development because of the almost universal belief that the forests of America were inexhaustible.

Parsimonious Utilization—1876 to 1933

An abrupt reaction followed the "lavish era" and "parsimonious" best describes the manner of the use of the forest crop during the next 50 years. Fear seemed to dominate the use of the forest crop in this half century—fear of a timber famine. "Preserve the forests for future generations!" "Stop cutting the trees!" These were the guiding precepts of this period. The manufacturers of brick, tile, cement, steel, and other materials which could be substituted for wood products had their innings and wide publicity was given to the notion that by the use of substitutes trees would be preserved for future generations.

Scientific Utilization—1933

We of today are not only using the forests for homes, schools, churches, and factories, but we are using the forests more intensively in the making of pulp, rayon, and furniture. Where the Pilgrims used the forest crop "incidentally," where the Pioneers used it "lavishly," where the Preservists used it "parsimoniously," we of today, profiting through observing the extremes of utilization to which previous generations went, are endeavoring to utilize the forest crop scientifically and more and more completely for the benefit of society, for today and for tomorrow. Because of progress through research, coupled with a broadening social objective, it is fair to say that the guiding motive of an ever-mounting number of forest managing agencies, private and public, is to serve the American people. That service consists in multiplying the uses to which the forest crop is put so that the American people shall have uninterrupted supplies of forest products of ever-increasing usefulness at prices which they can afford to pay; to provide continuous, profitable, and enjoyable employment for men and women; to furnish a permanent, profitable and attractive investment for public and private capital; to conserve the fish and game within the forests; to protect water-sheds; and to maintain grazing areas. This objective can be attained only through a realization of the mutual interest which the American people have in using the forest crop—the mutual interests of engineers, loggers, operators, sawmill men, statemen, chemists, papermakers, pulp workers, carpenters, architects—the American people.

Scientific Research

Through scientific research we have seen the uses of the forest crop multiply to the point where today there are over 4000 uses of wood fiber. Foremost, in the very vanguard of this scientific progress, stands the pulp and paper industry. The pulp and paper industry has been the pace-setter of the forest products industry in scientific research.

The Scientific Man of 1940 looks at a tree and he sees all these values, plus pulp and paper and plywood and rayon and wallboard and all of the other 4000 modern products of the forests. He looks through the trees and through the forests and beyond he visualizes mankind using the forest crop in marvelous new ways—ways which today are hidden in the test tubes of science.

Wetting Agents in Sulphite Pulping*

The Effect of Certain Wetting Agents on the Sulphite Penetration and Pulping of Various Woods

By J. N. McGovern[1] and G. H. Chidester[2]

Abstract

The minimum time required for penetration of the bisulphite in sulphite cooking acid into specially prepared western hemlock, southern pine, and Douglas fir heartwood and sapwood chips was unaffected by the presence of the wetting agents Aerosol OT, Aerosol DF, Woburn digester oil, and XGA soap, in the amount of approximately 1% of moisture-free wood. Likewise no effect on penetration was noted when Douglas fir heartwood and sapwood chips were tested with sulphite acid containing wetting agent M. P. 189 in the amount of approximately 0.2% of moisture-free wood.

The amount of screenings from the less easily pulped woods like Douglas fir and southern pine heartwoods ran somewhat higher when the above wetting agents were present in comparison with normal sulphite pulping acid, but were unchanged from the sapwood of these species and from white spruce. The bleach requirements and strength values showed no significant changes with the use of the wetting agents. Finally, the extractives soluble in alcohol-benzene and ether appeared to be somewhat higher when XGA soap and Woburn digester oil were used, were slightly lower when Aerosol OT was used, and were unchanged when M. P. 189 was used in comparison with these factors for the pulps made with usual pulping acid.

The successful use of the so-called wetting agents or surface active chemicals in the textile industry for the purpose of improving spreading and penetration by reducing the interfacial tension between the liquid and the solid has led to a consideration of the possibility of their application in the pulp and paper industry. One suggested use is their addition to sulphite cooking liquor in order to aid its penetration into the chips with the hope of improvement in the pulping action *(1, 2, 3, 4, 5, 8)* and in some cases to aid removal of pitch from the pulp *(2)*.

A large number of wetting agents are now available covering a considerable range of chemical composition. These new surface active chemicals are conveniently classified into (1) fatty derivatives including soaps, fatty alcohol sulphates, and sulphated fatty acid esters and amides, and (2) synthetic products including secondary alcohol sulphates, sulphonated esters of higher alcohols and dibasic acids, and the numerous alkyl derivatives of aryl or aromatic sulphonates *(8)*. The types in group 2 are considered superior to those in group 1 as wetting agents and penetrants. Representatives of both classes were examined in the present experiments.

Though the literature and patents on the nature and proposed applications of wetting agents in pulping are fairly extensive, no actual data on their use in sulphite pulping have yet appeared. Certain information in somewhat allied fields has, however, been obtained at the Forest Products Laboratory[3]. It has been found, for instance, that certain representative wetting agents did not aid the penetration or absorption in wood of fire-retardant chemicals *(7)*. Furthermore, "Wetting agents are shown to be of no value in increasing the rate of absorption of water by dry wood, or in increasing the rate of swelling of dry wood under ordinary soaking conditions. This is the case because the rate of wetting is not the slowest of the three factors involved in take-up of water by wood. Either the rate of capillary rise or the rate of diffusion into the cell walls controls the rate of takeup of aqueous solutions by wood, except perhaps for the first few minutes during which time the water take-up is such a small fraction of the saturation value that it has no practical significance" *(6)*.

Owing to the considerable interest in the possible application of wetting agents to pulping and to obtain quantitative data of their effects, certain wetting agents have been added to sulphite cooking acids and their effect observed on the penetration and pulping of white spruce and the heartwood and sapwood from western hemlock, Douglas fir, and southern pine. The wetting agents used were Aerosol OT, Aerosol DF, Woburn digester oil, XGA soap, and M. P. 189; they are briefly described in Table I.

TABLE I.—DESCRIPTION OF WETTING AGENTS USED

Name	Manufacturer	Composition	Form	Recommended amount
XGA soap	Standard Oil Co. (Indiana)	Sulphonated petroleum hydrocarbon	Viscous liquid	.....
Woburn digester oil	Woburn Degreasing Co. of New Jersey	Sulphonated fatty acid mixture (linseed, cottonseed, etc.)	Viscous liquid	8 to 16 pounds per ton pulp
Aerosol OT	American Cyanamid & Chemical Corp.	Dioctyl ester of sodium sulphosuccinate	10% solution	.....
Aerosol DF	American Cyanamid & Chemical Corp.	Dioctyl ester of succinic acid	Liquid	.....
M. P. 189	E. I. duPont de Nemours & Co.	Mineral oil sulphonate	Crystals	5 pounds per ton pulp

Experimental Part

Penetration Experiments

Chips ⅛ inch thick, ⅝ inch in the grain direction, and one inch long prepared by sawing and planing from the sapwood and heartwood of western hemlock, southern pine, and Douglas fir, were treated in corrosion-resistant bombs with sulphite acid with and without the various wetting agents. The penetration tem-

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[3] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

TABLE II.—PENETRATION RESULTS WITH VARIOUS WETTING AGENTS AND WOODS

Wetting agent		Time required for penetration							
		Douglas fir [1]		Douglas fir [2]		Slash pine		Western hemlock	
Kind	Amount, g./l.	Heart, Hours	Sap, Hours	Heart, Hours	Sap, Hours	Heart, Hours	Sap, Hours	Heart, Hours	Sap, Hours
None	..	4.75	3.25	3.0	3.0	7.5	4.25	3.0	3.0
XGA soap	1.0	4.50	3.00	..	..	8.0	4.50	3.0	3.0
Aerosol DF	1.0	4.75	3.25	..	..	8.0	4.50	3.0	3.0
Aerosol OT	10.0	4.50	3.50	..	..	8.0	4.50	3.0	3.0
Woburn oil	1.0	4.75	3.50	..	..	7.5	4.50	3.0	3.0
M. P. 189	.2	...	...	3.0	3.0	..	...	..	..

[1] Shipment 1466.
[2] Shipment 1528.

perature of 110 deg. C. was obtained by oil bath heating and the acid composition was 5.60% total with 1.30% combined sulphur dioxide in all cases. The bomb charge was made up of 25 grams of chips on a moisture-free basis and 250 cc. of acid; the concentrations of the wetting agents are shown in table II. Penetration times were determined by ascertaining the minimum time required for penetration of the bisulphite into the innermost portions of the chips. The presence of the bisulphite was indicated by the blue coloration of bromphenol blue dropped on the inside faces of split chips. The penetration times are included in Table II.

Pulping Experiments

Five-eighths inch chips were prepared from the various wood species and pulped by calcium base sulphite acid both with or without the wetting agents. Except for the pulping experiments involving M. P. 189, the digestions were made in a 50-pound, steam-jacketed, alloy-lined digester in which were placed four perforated alloy baskets of two-pound pulp capacity. The digester proper was charged with white spruce chips and the four baskets contained the heartwood and sapwood chips from the southern pine and Douglas fir. The digestion conditions used for the experiments in the 50-pound digester are found in Table III.

An alloy-clad, steam-jacketed autoclave of five-pound pulp capacity was used for the experiments with M. P. 189. This autoclave was charged with Douglas fir chips and the digestions carried out according to the conditions given in Table IV.

TABLE III.—CONDITIONS FOR 50-POUND DIGESTIONS

Temperature schedule	
Time to 110 deg. C.	2 hours
Time at 110 deg. C.	2 hours
Time 110 deg. to 145 deg. C.	1.5 hours
Time at 145 deg. C.	4.25 hours
Total time	9.75 hours
Composition of cooking liquor	
Total sulphur dioxide	5.50%
Combined sulphur dioxide	1.30%
Maximum pressure	75 pounds per square inch
Wood dryness	
White spruce	68.7 to 84.5%
Douglas fir heartwood	88.1 to 92.4%
Douglas fir sapwood	84.0 to 93.5%
Southern pine heartwood	89.6 to 93.1%
Southern pine sapwood	92.4 to 93.5%

TABLE IV.—CONDITIONS FOR AUTOCLAVE DIGESTIONS

Temperature schedule	
Time to 110 deg. C.	1.5 hours
Time at 110 deg. C.	1.0 hours
Time 110 to 140 deg. C.	3.5 hours
Time at 140 deg. C.	2.8 to 3.0 hours
Composition of cooking liquor	
Total sulphur dioxide	7.0%
Combined sulphur dioxide	1.25%
Pressure (maximum—no relief)	126 to 131 lb./sq. in.
Wood dryness	69.4 to 70.4%

The amounts of wetting agents used for each digestion in the 50-pound digester are included in Tables V and VI and that for the five-pound autoclave in Table VII. None of the wetting agents used appeared to be entirely soluble in the sulphite acid liquor.

Yield and screenings determinations, pulp bleach requirements according to the permanganate number and single-stage hypochlorite methods, beater strength characteristics, and solubilities in ether and alcohol-benzol were carried out by Forest Products Laboratory methods.

Discussion of Results

Penetration Experiments

The results of the penetration tests summarized in Table II show that the wetting agents used under the conditions of these experiments had no effect on the time required for the bisulphite to penetrate into the chips. The small differences that do occur are entirely within the experimental error. It should, perhaps, be emphasized that the penetration test applied here is essentially qualitative; it measures neither the amount nor the composition of the cooking liquor in the chips.

The ineffectiveness of the wetting agents with respect to penetration of sulphite cooking liquor into wood chips found in these experiments is quite in

TABLE V.—RESULTS OF 50-POUND DIGESTIONS OF VARIOUS WOODS WITH SULPHITE LIQUORS WITH AND WITHOUT XGA SOAP—SERIES A

Digestion	Amount of XGA soap Pounds per 100 pounds wood	Wood species	Combined SO_2 at end %	Pulp yield Total %	Screened %	Screenings %	Bleach requirement: From $KMnO_4$ number % standard bleach	From single-stage hypochlorite determination powder	Test beater strength characteristics—25x40—500 ream: Bursting strength Freeness cc. 800 points per pound per ream	550	Tearing resistance Freeness cc. 800 grams per pound per ream	550	Tensile strength Freeness cc. 800 pounds per square inch	550	Solid fraction Freeness cc. 800	550	Beating time Freeness cc. 800 minutes	550	Solubility in: Alcohol-benzene %	Ether %
3774	none	white spruce	—0.02	44.8	44.7	0.1	10	16	0.93	1.05	1.30	1.00	7900	10200	0.57	0.66	22	53	0.8	1.0
3778	0.99		0.00	45.6	45.5	0.1	14	18	0.98	1.01	1.10	0.75	7200	10100	0.50	0.61	25	60	1.4	1.0
3774-1 [1]	none	Douglas [2] fir	—0.02	52.6	37.5	15.1	35	over 40	0.75	0.88	1.35	0.95	4000	6400	0.38	0.51	14	37	0.8	0.9
3778-4 [1]	0.99	heartwood	0.00	53.5	39.0	14.5	34	over 50	0.81	0.94	1.40	0.85	4100	6800	0.41	0.47	25	68	1.4	1.2
3774-3 [1]	none	southern pine	0.02	53.8	40.0	13.8	45	over 50	0.63	0.76	1.20	0.90	3300	6000	0.40	0.49	35	64	1.3	1.3
3778-5 [1]	0.99	heartwood	0.00	56.9	29.2	27.7	44	over 50	0.56	0.70	1.05	0.80	3000	5200	0.37	0.45	32	58	1.8	1.6
3774-2 [1]	none	Douglas [2] fir	—0.02	48.8	48.4	0.4	8	14	0.85	1.00	2.00	1.40	4300	6500	0.39	0.50	17	43	0.3	0.6
3778-3 [1]	0.99	sapwood	0.00	48.0	47.3	0.7	8	14	0.82	1.00	1.90	1.35	4200	7800	0.42	0.54	26	74	0.7	0.7

[1] Basket digestions.
[2] Shipment 1466.

TABLE VI.—RESULTS OF 50-POUND DIGESTIONS OF VARIOUS WOODS WITH SULPHITE LIQUORS WITH AND WITHOUT AEROSOL OT AND WOBURN OIL—SERIES B

Digestion	Wetting agent: Name	Amount Pounds per 100 pounds wood	Combined SO_2 at end %	Pulp yield: Total %	Screened %	Screenings %	Bleach requirement: From $KMnO_4$ number % standard bleach	From single-stage hypochlorite determination powder	Test beater strength characteristics—25x40—500 ream: Bursting strength Freeness cc. 800	550 points per pound per ream	Tearing resistance Freeness cc. 800	550 grams per pound per ream	Tensile strength Freeness cc. 800	550 pounds per square inch	Solid fraction Freeness cc. 800	550	Beating time Freeness cc. 800	550 minutes	Solubility in: % Alcohol-benzene	% Ether
White Spruce																				
3779	none		0.17	50.2	50.1	0.1	16	19	1.02	1.13	1.35	0.85	6500	10700	0.50	0.61	22	70	1.3	1.2
3776	Aerosol OT	0.74	0.14	46.0	45.9	0.1	18	20	1.06	1.14	1.20	0.85	7600	10800	0.51	0.60	20	49	0.9	0.9
3777	Woburn oil	1.02	0.18	48.5	48.4	0.1	16	18	1.02	1.10	1.25	0.75	7200	10500	0.52	0.61	29	74	1.5	1.3
Douglas Fir Heartwood [1]																				
3779–4	none [2]		0.17	54.1	37.3	16.8	36	over 40	0.85	0.95	1.35	0.90	5100	6400	0.41	0.50	22	57	0.8	1.0
3776–4	Aerosol OT [2]	0.74	0.14	56.2	33.7	22.5	37	over 50	0.76	0.81	1.35	0.85	3900	6900	0.36	0.48	16	46	0.9	0.7
3777–4	Woburn oil [2]	1.02	0.18	54.9	34.2	20.7	36	over 40	0.79	0.90	1.45	0.85	4400	5500	0.42	0.48	36	82	2.1	1.8
Southern Pine Heartwood																				
3779–3	none [2]		0.17	57.8	28.0	29.8	46	over 50	0.56	0.70	1.00	0.70	3100	4600	0.38	0.42	31	57	1.6	1.3
3776–3	Aerosol OT [2]	0.74	0.14	58.4	26.5	31.9	46	over 50	0.64	0.77	1.15	0.80	3300	4400	0.37	0.42	26	58	1.2	1.1
3777–3	Woburn oil [2]	1.02	0.18	58.3	26.6	31.7	45	over 50	0.61	0.74	1.20	0.80	3400	5400	0.37	0.45	28	58	1.8	1.4
Douglas Fir Sapwood [1]																				
3779–2	none [2]		0.17	48.3	47.3	1.0	10	14	0.87	1.04	1.80	1.30	4100	7000	0.40	0.48	26	66	0.5	0.6
3776–2	Aerosol OT [2]	0.74	0.14	50.8	49.8	1.0	11	20	0.83	1.05	2.25	1.40	3900	6600	0.38	0.47	19	54	0.4	0.5
3777–2	Woburn oil [2]	1.02	0.18	49.5	48.5	1.0	11	14	0.88	1.05	2.10	1.45	4600	5600	0.40	0.46	27	77	0.8	0.8
Southern Pine Sapwood																				
3779–5	none		0.17	51.7	46.3	5.4	16	22	0.89	1.08	1.70	1.20	5100	6000	0.42	0.46	41	95	1.7	0.9
3776–5	Aerosol OT [2]	0.74	0.14	52.9	45.3	7.6	16	25	0.92	1.10	1.90	1.35	4400	7400	0.40	0.47	30	69	1.2	1.0
3777–5	Woburn oil [2]	1.02	0.18	52.4	46.5	5.9	17	25	0.88	1.01	1.55	1.35	3900	6200	0.41	0.45	40	90	2.3	1.8

[1] Shipment 1466.
[2] Basket digestions.

agreement with the results obtained on the penetration and absorption of water and fire-retardant chemicals.

Pulping Experiments

Three independent sets of digestions are available for determining the effect of the wetting agents on the pulping results and pulp properties. (A) In Table V the results from the 50-pound digestion with sulphite acid containing XGA soap are shown in comparison with the results from a control digestion in which no wetting agent was added. Both digestions were carried to a low combined sulphur dioxide figure and appear comparable in degree of pulping. (B) In Table VI the results from the 50-pound digestions in which Aerosol OT and Woburn digester oil were added to the cooking acid are compared with those from another control digestion. The digestions in series B were cooked less than those in series A as shown by the greater exhaustion of bisulphite, the lower bleach requirement of the pulp, and the lower yield for the latter. The fact that the cooking time was the same as series A is probably owing to the drier wood and possibly an effect of the XGA soap. However, the digestions in series B likewise check fairly closely with respect to pulping degree for the same kind of wood. (C) The results from the autoclave digestions shown in Table VII also indicate that the digestions made with liquors containing M. P. 189 and those without were all pulped to closely the same degree.

Series A. XGA Soap. The yields and screenings from the digestions of the various woods with acids free from and containing XGA soap are essentially the same except for the low screenings obtained from the southern pine heartwood with the acid free from the wetting agent. This low screenings figure may perhaps be discounted on the basis of the high screenings value obtained on the same wood in series B. In any case, the XGA soap appears to have little general effect on the pulp yield or the screenings. Likewise, the bleach requirement data are not affected by the presence of the wetting agent.

While differences in strength characteristics occur which are possibly larger than experimental error, no consistent trend is noticeable except for perhaps the longer beating time required to achieve a freeness of 550 cc. in the pulps made with XGA soap. The differences in ether and alcohol-benzene solubilities are small for the pulps from the two types of digestions,

TABLE VII.—RESULTS OF AUTOCLAVE DIGESTIONS OF DOUGLAS FIR [1] WITH SULPHITE LIQUORS WITH AND WITHOUT M.P. 189—SERIES C

Digestion	Amount of M.P. 189 pounds per 100 pounds wood	Total digestion time hours	Combined SO_2 at end %	Pulp yield: Total %	Screened %	Screenings %	Bleach requirement: From $KMnO_4$ number % standard bleach	From single-stage hypochlorite determination powder	Test beater strength characteristics—25x40—500 ream: Bursting strength Freeness cc. 800	550 points per pound per ream	Tearing resistance Freeness cc. 800	550 grams per pound per ream	Double folds Freeness cc. 800	550	Tensile strength Freeness cc. 800	550 pounds per square inch	Solid fraction Freeness cc. 800	550	Beating time Freeness cc. 800	550 minutes	Solubility in: % Alcohol-benzene	% Ether
237	none	8.85	0.02	49.5	43.6	5.9	23.8	30	0.69	0.74	1.80	1.05	...	...	4200	6200	0.44	0.52	16	37	1.0	0.80
239	none	8.80	0.00	48.9	43.0	5.9	23.3	30	0.64	0.71	1.52	1.05	175	165	5100	6900	0.43	0.49	18	44	1.0	1.00
	average	8.82	0.01	49.2	43.3	5.9	23.6	30	0.66	0.72	1.66	1.05	175	165	4650	6550	0.44	0.50	17	40	1.0	0.90
260	0.125	8.90	0.00	48.7	40.7	8.0	21.0	24	0.66	0.75	1.60	1.00	140	140	5200	6800	0.43	0.50	18	40	1.0	1.00
261	0.125	9.00	—0.02	50.0	40.9	9.1	24.3	30	0.66	0.73	1.55	0.95	300	400	5300	7200	0.43	0.51	16	37	0.8	0.80
	average	8.95	—0.01	49.4	40.8	8.6	22.6	27	0.66	0.74	1.58	0.98	220	270	5250	7000	0.43	0.50	17	38	0.9	0.90

[1] Shipment 1528.

but there seems to be a slight trend towards high alcohol-benzene figures from the pulps made with XGA soap.

Series B. Aerosol OT and Woburn Digester Oil. The amount of screenings from the less easily reduced woods, Douglas fir and southern pine heartwoods, are slightly lower when no wetting agent was added as compared to the cases when Aerosol OT or Woburn digester oil were present. The bleach requirements of the pulps, on the other hand, are not affected by the use of the two wetting agents in the cooking acids. The screened yields of pulp from the white spruce are unexplainably erratic.

The strength values of the pulps again differed in some instances by amounts greater than the experimental error, but there was no evidence in comparing either one pulp type or on the average of any consistent effect of the wetting agents. Possible exceptions to this conclusion are the quite regularly short beating times shown by the pulps from the digestions made with Aerosol OT. There is some evidence that the alcohol-benzene and ether solubility figures are somewhat higher for the pulps prepared using Woburn digester oil and slightly lower for the pulps prepared using Aerosol OT in comparison with the pulp prepared without added wetting agent.

Series C. M. P. 189. The amounts of screenings from the digestions made with the acid containing M. P. 189 were definitely higher than those from the digestions made with no added chemical, although a slightly longer time was needed in the case of the former as compared with the latter to achieve the same degree of pulping as measured by the combined sulphur dioxide in the blow liquor and the bleach requirement of the screened pulps. The strength and extractives values of the pulps from the two sets of digestions were practically the same.

The generally higher amount of screening resulting from pulping the more refractory woods with liquors containing the wetting agents as compared to the figure when these materials were absent is probably due to a settling on the chips of the insoluble wetting agent chemicals and thus aggravating an already difficult diffusion situation. By the same reasoning the higher chemical solubilities may be possibly traced to the presence of these sulphite acid insoluble materials which are somewhat soluble in alcohol-benzene and to a lesser extent in ether.

Literature Cited

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(6) Stamm, A. J., and Petering, W. B. *Ind. Eng. Chem.* 32, no. 6: 809-813 (June, 1940).
(7) Van Kleeck, Arthur. Typewritten report. Project 282-2, Forest Products Laboratory (March 27, 1939).
(8) Wilkes, B. G., and Robertson, H. F., *Tech. Assoc. Papers* 22: 264-267; *Paper Trade J.* 109, no. 7:36-40 (Aug. 17, 1939).

Consumer Meets Package

Under the title of "Consumer Meets Package", the Container Corporation of America, 111 West Washington street, Chicago, Ill., has issued an attractive booklet presenting the merits of clay coated box board. The die-cut specimens show the contrast between patent coated and the company's "Wabacoat" clay coated board. The illustrations are partly based on the principles of abstract design and the impression created by a direct comparison of the two printed surfaces is calculated to show what happens when "consumer meets package."

Kraft and Soda Pulp at TAPPI Annual

As in the past few years the Technical Association of the Pulp and Paper Industry will again have an excellent program for the benefit of manufacturers of soda and kraft pulps at its annual meeting, February 17-20, 1941, at the Roosevelt Hotel, New York, N. Y.

Following is the tentative program of papers to be presented at sessions under the chairmanship of Paul Hodges of Brunswick, Ga., and S. D. Wells of the Institute of Paper Chemistry.

1. "Suitability of High Density, High Summerwood Slash Pine for Kraft and High Grade Papers" by S. L. Schwartz and M. W. Bray, Forest Products Laboratory, Madison, Wis.
2. "Pulping Red Gum by the Alkaline Processes, I. The effect of Cooking Variables on the Yield and Quality" by M. W. Bray and J. S. Martin, Forest Products Laboratory, Madison, Wis.
3. "Chemical and Physical Characteristics of Soda Pulp" by John Franciewitz and N. I. Bearse, Champion-International Company, Lawrence, Mass.
4. "Some Fundamental Factors to be Considered in Deinking Waste Papers" by A. O. Bragg, Diamond Alkali Company, New York, N. Y.
5. "Kraft Pulping with Low Sulphidity" by S. D. Wells and K. A. Arnold, Institute of Paper Chemistry, Appleton, Wis.
6. "The Possibility of Using Gypsum to Replace Sodium Sulphate, in Part, in the Kraft Recovery Process" by Otto Kress and W. H. Aiken, Institute of Paper Chemistry, Appleton, Wis.
7. "Operating Data on the Combustion Engineering Recovery System" by F. H. Rosencrants, Combustion Engineering Company, New York, N. Y.
8. "The Cottrell Precipitator in the Kraft Industry" by H. R. Murdock, Champion Paper and Fibre Company, Canton, N. C., and L. M. Roberts, Research Corporation, New York, N. Y.

Pollution Suits Dismissed

SHELBYVILLE, Ind., December 9, 1940—Dismissal by the plaintiffs of 29 complaints marked the end of one of the most involved damage suits ever filed in circuit court here. The Carthage division of the Container Corporation of America, defendants, and farmers and summer cottage owners along the banks of Big Blue river were plaintiffs.

Alleged pollution of the stream by refuse from the Carthage factory was the basis for the suits, first of which was filed in 1938. Damages totaling $50,000 had been asked.

Efforts of the company, begun in 1936, have reduced the possibility of stream pollution to a minimum as a result of refuse from the plant, according to a statement issued in November by the Stream and Water Pollution of the division of the Department of Industries and Commerce of the State of Indiana. The company has built two large settling basins which prevent the pouring of refuse directly into the stream. The company also has conducted extensive experiments in different types of processing in efforts to prevent the spread of pollution.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING DECEMBER 7, 1940

SUMMARY

Newsprint .....6,853 rolls, 31 bls.
Wrapping paper .....886 rolls, 55 bls.
Filter paper .....9 cs.
Drawing paper .....10 cs.
Decalcomania paper .....8 cs.
Photo paper .....70 cs.
Tissue paper .....3 cs.
Cellophane paper .....6 cs.
Miscellaneous paper .....1,050 bls., 53 rolls, 1 cs.

NEWSPRINT

H. Reeve Angel & Co., Inc., ——, Liinahamari, 712 rolls.
Walker Goulard Plehn Co., Inc., ——, Liinahamari, 43 rolls, 31 bls.

WRAPPING PAPER

Sharp Paper & Specialty Co., Inc., ——, Liinahamari, 41 bls.
Tension Envelope Corp., ——, Liinahamari, 13 bls.
Brooklyn Bag Corp., ——, Liinamahari, 886 rolls, 1 ble.

FILTER PAPER

H. Reeve Angel & Co., Inc., ——, Liverpool, 9 cs.

DRAWING PAPER

Winsor & Newton, Inc., ——, Liverpool, 10 cs.

DECALCOMANIA PAPER

——, ——, Liverpool, 8 cs.

PHOTO PAPER

——, ——, Liverpool, 70 cs.

TISSUE PAPER

——, ——, Liverpool, 3 cs.

CELLOPHANE PAPER

Sherwin Bros., ——, Yokohama, 6 cs.

MISCELLANEOUS PAPER

D. F. Young, ——, Liinahamari, 1050 bls. 53 rolls.
H. Reeve Angel & Co., Inc., ——, Liinahamari, 1 cs.

RAGS, BAGGINGS, ETC.

——, ——, Liverpool, 177 bls. rags.

HIDE CUTTINGS

——, ——, Liverpool, 400 bags.

GLUE STOCK

Darmstadt Scott & Courtney, ——, Buenos Aires, 11 bls.
Darmstadt Scott & Courtney, ——, Buenos Aires, 48 bls.

CHINA CLAY

——, ——, Liverpool, 112 bags.

CASEIN

Packing Products Co., ——, Buenos Aires, 334 bags, 20040 kilos.

BOSTON IMPORTS

WEEK ENDING DECEMBER 7, 1940

Elliott Addressing Machine Co., ——, Yokohama, 12 cs. paper.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 7, 1940

Pulp Sales Corp., ——, Liinahamari, 5,025 bls. sulphite pulp.

LOS ANGELES IMPORTS

WEEK ENDING DECEMBER 7, 1940

——, ——, Tokio, 2 cs. writing paper, 3 cs. hanging paper.
——, ——, Ocean Falls, 1,265 rolls newsprint.
——, ——, Yokohama, 3 pkgs. hanging paper.
——, ——, Osaka, 2 cs. tissue paper.
——, ——, New Westminster, 1,745 bls. unbleached sulphite, 350 tons.

N. P. T. A. Announces Winners

The National Paper Trade Association announces the following list of winners submitting the best answers to question No. 7, "I get quality, service and fair prices from the Jones Paper Company, so why should I buy from your house?":—

First Prize—A. E. Keleher, Stone & Forsyth Company, Boston, Mass. Second Prize—Leon Nack, A. E. MacAdam & Co., Inc., Brooklyn, N. Y. Third Prize—C. M. Watterson, Peterson Paper Company, Davenport, Iowa.

Fourth to Eighth Prize Winners—W. G. Harbers, John C. Streibich Company, Peoria, Ill. A. F. Harder, Knox & Schneider, Chicago, Ill. L. H. Morgan, Andrews Paper House of York, York, Pa. H. M. Cruse, Crescent Paper Company, Indianapolis, Ind. D. L. Jones, Roach Paper Company, Little Rock, Arkansas.

Honorable Mention—G. D. Berg, Spokane Paper and Stationery Company, Spokane, Wash.; Murray Emanuel, Yorkville Paper Company, New York, N. Y.; W. W. Gaudreau, Standard Paper Company, Tacoma, Wash.; C. H. Gravett, The Scioto Paper Company, Columbus, Ohio; O. F. Hamilton, Hamilton Paper Corporation, Richmond, Va.; D. R. Kimbark, Berkshire Papers, Inc., Chicago, Ill.; A. J. Metzke, The Stedman Company, Beaumont, Texas; R. S. Smith, Lehigh Valley Paper House, Allentown, Pa.; H. C. Tatman, Standard Paper Company, Tacoma, Wash.; A. H. Whitley, Jr., Parker Paper Company, High Point, N. C.; W. S. Whitmore, Wilcox-Mosher-Leffholm Company, Minneapolis, Minn.

New York Paper and Pulp Market Review

Seasonal Tapering Off In Demand Reported In Many Grades of Paper This Week, With Prices Holding Unchanged—Pulp Market Quiet—No. 1 Roofing Rags Higher—Paper Stock Market Softer.

Office of the PAPER TRADE JOURNAL,
Wednesday, December 11, 1940.

Sales volume continues to be maintained at a moderate level, according to reports received from many manufacturers' representatives, jobbers, and general paper merchants during the current week. Demand for many grades of paper is about 5 per cent less than last year at this date.

The index value of manufacturers' shipments of paper and paper products for October, 1940, according to the industrial survey of the Department of Commerce, stood at 131, compared with 137 for September and with 142 for June, 1940. This compares with 135 for October, 1939 and with 126 for September, 1939. The index of manufacturers' inventories reached a high of 110.7 for October, 1940, an increase of 5.0 per cent from the low point of the year in January, 1940. This compares with 93.5 per cent for October, 1939, with 92.5 for September and with 102.2 for December, 1939.

The index of general business activity declined to 112.2 per cent for the week ended November 30, from 117.0 per cent for the preceding week, compared with 106.2 per cent for the like period last year.

Paper production of 234 mills for the week ended November 30 was estimated at 87.0 per cent, compared with 95.1 per cent for 1939, with 78.8 per cent for 1938, with 61.0 per cent for 1937, and with 90.3 per cent for the corresponding week for 1936.

Paper board production for the week ended November 30 was 76.0 per cent, compared with 78.0 per cent for 1939, with 61.0 per cent for 1938, with 50.0 per cent for 1937, and with 78.0 per cent for the correspondng week for 1936.

Reports from the wholesale market reflects this week the usual seasonal tapering off in demand for standard lines and increase in sales of Christmas goods. Wrapping paper sales have been well maintained, both in kraft and in sulphite papers. The demand for other kinds of paper is reported fair. Prices are firm as a whole, with no indications at this date of any important changes from prevailing representative market quotations. The paper board market is moderately active.

Mechanical Pulp

No important change has been reported in mechanical pulp this week. Prices are unchanged, with current reports indicating no impending change during the first quarter of 1941.

Chemical Pulp

Announcements of several pulp producers, domestic and Canadian, of unchanged contract prices for the first quarter of 1941, is generally viewed in the trade that pulp prices on all grades of chemical pulp will continue unchanged for the first three months of 1941. Production is very gradually expanding and the prevailing price level is considerably favorable.

Rags

Mill buying of rags is reported slow at this date on all the higher grades. The demand for roofing rags continues good. No important change in prices has been reported this week, excepting an advance in No. 1 roofing rags, currently quoted at from 1.15 to 1.20.

Old Rope and Bagging

The old rope market is strong and prices firm. Mill buying of old No. 1 Manila continues steady. A continuation of a strong rope market is to be expected, with the trend toward higher prices, so long as the current situation of sharply limited supplies continues. Prices are unchanged.

Trading in old bagging is steady and this market is firm under the influence of limited supplies. While many dealers share the expectation of higher prices, mill buying continues somewhat cautiously and the market is stable. Prices continue unchanged.

Old Waste Paper

The paper stock market continues steady, with some weak spots reported on No. 1 mixed paper and on old corrugated. Prices to mills remain unchanged.

Twine

No important change in the market situation in twine, or in prices, has been reported this week. Sales volume for the Christmas trade has been good and activity at this date is about normal for this season of the year. The outlook is good.

Goes With Los Angeles Paper Bag Co.

E. D. Foster has resigned his position as assistant sales manager of the Bag Division of Southern Kraft Corporation to become sales manager of the Los Angeles Paper Bag Company in Los Angeles. Mr. Foster has long played an important part in the supervision of sales and national distribution of all types of kraft bags for the Southern Kraft Corporation.

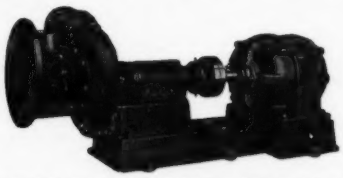
In going to the Pacific Coast, he is terminating an association of nineteen years, during which he has served the Continental Division of Southern Kraft Corporation, a subsidiary of International Paper Company.

Buys Paper Under Walsh-Healey Act

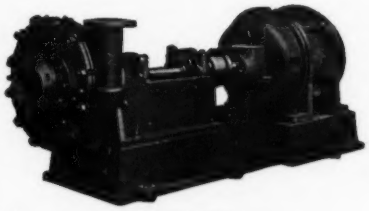
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 11, 1940—During the week ended November 23, the Government purchased $34,090.48 worth of paper and allied products under the Walsh-Healey Act as follows: $18,043.98 worth of office supplies for War, Air Corps, from Walker Goulard Plehn Company, Inc., New York City; and $16,046.50 worth of office supplies for War, Air Corps, from The Paragon Paper Company, Cincinnati, Ohio.

MORRIS
CENTRIFUGAL PUMPS
for every service in pulp and paper mills



ST-P Pulp Pump. GUARANTEED NON-BINDING



Slurry Pump

Non-Clogging Pumps—will handle thickest stock without choking or slippage of material passing through pump. Designed throughout for ease of inspection and dismantling. Horizontal and vertical types for low and high speeds.

Slurry Pumps—Specially designed to handle chemical mixtures, including abrasive materials. All parts heavily proportioned, and adjustable to maintain initial high efficiency even after long wear.

Pumps for Clear Liquids—Horizontally-split double-suction and side-suction types. Furnished bronze fitted or all bronze, with open or enclosed impellers, and for a wide range of capacities, heads and speeds. Also special types for extremely large capacities.

Special Service Pumps—For boiler feed, fire protection, condenser circulation, sump drainage, etc.

Write for Bulletins

MORRIS MACHINE WORKS
BALDWINSVILLE, N. Y.
Export Office: 50 Church St., New York City

"Axiflow" Pump

Season's Greetings

The approach of Christmas reminds us again most pleasantly of friends both near and far. Those whose cooperation and loyalty have guided us in the past, and now inspire us for the coming year.

. . . To You All, the Makers of TENAX FELTS extend these greetings:

A Merry Christmas and a
Happy and Prosperous New Year

LOCKPORT FELT COMPANY
NEWFANE, N. Y. — U. S. A.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, December 11, 1940.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works. Demand reported moderate for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported moderate for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, with prices little changed for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 13 cents per pound; 80-100 mesh, at 13½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 12½ cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Shipments reported steady. Solid caustic soda is currently quoted at $2.30 per 100-pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market active. Demand reported good for the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices lower. "G" gum rosin is currently quoted at $1.68 per 100 pounds, in barrels, Savannah "FF" wood rosin is currently quoted at $1.63 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.42 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm and nominal. Shipments steady. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and continue unchanged for the current week. Pearl is currently quoted at $2.90 per 100 pounds; powdered starch at $3 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported moderate for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. Quotations on imported talc are nominal.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—
Roll, contract....$50.00 @ —
Sheets .....38.00 " —

Kraft—per cwt.—Delivered Zone A
Northern, Extra Quality .....$5.25 @$5.75
Superstandard .... 4.87½ " 5.25
Northern Standard Wrapping ..... 4.37½" 4.62½
Standard Wrapping 4.25 " —

Tissues—Per Ream—Carlots
White No. 1..... .97½" —
White No. 1 M. G. .95 " —
White No. 1½.... .80 " —
White No. 2..... .75 " —
Anti Tarnish M. G. .80 " —
Colored ..... .85 " —
Kraft ..... .87½" —
Manila ..... .77½" —
Unbl. Toilet, 1 M.. 3.75 " —
Bleached Toilet.... 5.26 " —

Paper Towels, Per Case—
Unbleached, Jr..... 2.10 " —
Bleached, Jr..... 3.60 " —

Manila—per cwt.—C. l. l. a.
No. 1 Jute..... 8.25 @10.25
No. 1 Manila Wrapping, 35 lb..... 5.25 " —
No. 2 Manila Wrapping, 35 lb..... 5.00 " —

Boards, per ton—
News .....35.00 @40.00
Chip .....35.00 " 40.00
Sgl. Mla. Ll. Chip.55.00 " 57.00
White Pat. Coated.67.00 " 70.00
Kraft Liners.....55.00 " —
Binders Boards....73.00 " 80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items.
Delivered in Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1.	$39.10@$46.00	$40.25@$47.25
100% Rag	31.05 " 36.50	32.20 " 37.75
85% Rag	.... "	29.90 " 35.00
75% Rag	23.60 " 27.75	24.75 " 29.00
65% Rag	.... "	21.65 " 26.25
50% Rag	17.55 " 21.50	18.70 " 22.75
25% Rag	14.65 " 17.75	15.80 " 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$9.35@$11.50	$11.55@$12.75
No. 2	8.50 " 10.25	9.65 " 11.75
No. 3	8.05 " 9.25	9.20 " 11.25
No. 4	7.70 " 9.50	8.90 " 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1

No. 1 Glossy Coated	$11.90@$13.30
No. 2 Glossy Coated	10.35 " 11.75
No. 3 Glossy Coated	9.55 " 11.00
No. 4 Glossy Coated	9.15 " 10.50
No. 1 Antique (watermarked)	9.05 "$10.50
No. 2 Offset	8.40 " 9.75
A Grade E. F.	8.20 " 9.50
A Grade S. & S. C.	8.45 " 9.75
B Grade E. F.	7.65 " 8.75
B Grade S. & S. C.	7.90 " 9.00
C Grade E. F.	7.35 " 8.50
C Grade S. & S. C.	7.60 " 8.75
D Grade E. F.	7.10 " 8.25
D Grade S. & S. C.	7.35 " 8.50

Ivory & India at 8.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)
No. 1 Imported—
Moist ..... No prices
Dry ..... No prices

(Delivered)
No. 1 Domestic and Canadian .....40.00 @42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)
Bleached Sulphite (Domestic and Foreign)—
Prime Bleached Sulphite ..... 3.72½@ 3.87½
Prime Qualities—
Easy Bleaching Sulphite ..... 3.17½" 3.75
Strong Unbleached Sulphite ..... 3.17½" 3.75
News Grade, delivered
Unbleached Sulphite .....58.00 " 61.50

(On Dock, Atlantic Ports)
Kraft Bleached ..... 4.12½"
Kraft Light & Strong 3.50 " 3.75
Kraft No. 1..... 3.40 " 3.60

(F. o. b. Pulp Mill)
Kraft Domestic and Canadian ..... 2.75 " 3.37½

(Delivered)
Soda Bleached ..... 3.30 " —

Add 60 cents per short ton, does charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1.	6.50	@ 6.75
Silesias No. 1.....	4.50	" 4.65
New Unbleached..	6.25	" 6.50
Blue Overall.....	4.35	" 4.50
Fancy	3.25	" 3.5
Washables	2.00	" 2.1
Mixed Khaki Cuttings	2.75	" 3.0
O. D. Khaki Cuttings	3.00	" 3.15

Old Rags

White, No. 1—		
Repacked	3.50	" 3.65
Miscellaneous	2.75	" 3.0
White, No. 2—		
Repacked	2.50	" 2.75
Miscellaneous	2.00	" 2.25
Thirds and Blues—		
Repacked	1.50	" 1.65
Miscellaneous	1.10	" 1.25
Roofing Rags—		
No. 1.....	1.15	" 1.20
No. 2.....	1.00	" 1.05
No. 3 (bagging)...	.90	" 1.0
No. 4.....	.60	" 6
No. 5A.....	.60	" .6

Foreign Rags

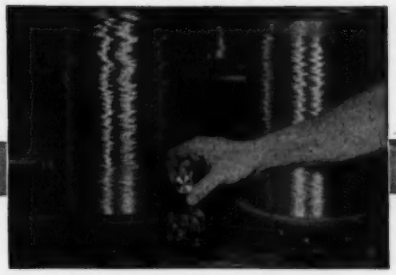
All prices nominal

New Rags

New Dark Cuttings..	2.25	@ 2.40
New Mixed Cuttings.	2.00	" 2.20
New Light Silesias..	5.50	" 5.75
Light Flannelettes...	5.50	" 5.75
New White Cuttings.	7.00	" 7.50
New Light Oxford..	4.00	" 4.50
New Light Prints...	3.00	" 3.25

Old Rags

No. 1 White Linens.	7.50	" 8.50
No. 2 White Linens.	6.50	" 7.50
No. 3 White Linens.	4.50	" —



Very important is the accurate drawing of wire to diameter by this die.

"Little Things" Help Make Quality Wires

If a manufacturer looks well to the execution of so-called "little things," the more significant phases of his product can usually be taken for granted. We are content to let the "detail" of Lindsay Wires speak for their performance. Only by attending for 37 years to minute as well as large points of quality has Lindsay made a definite contribution to the art of manufacturing paper.

THE LINDSAY WIRE WEAVING CO.

Serving the Paper Industry Since 1903

14001-14299 ASPINWALL AVENUE • CLEVELAND, OHIO

Lindsay **WIRES**

FOR PAPER MILLS

Trifles Make Perfection But Perfection Is No Trifle

COMPLETE FACILITIES AVAILABLE

You are invited to use our

TECHNICAL SERVICE

on

STARCHES
GUMS
SYRUPS
DEXTRINES

☆

STARCH
FOR ENZYME CONVERSION

AMIJEL
FOR THE BEATERS

LAM-O-DEX
FOR LAMINATING

COR-A-GUM
FOR CORRUGATING

For further information write

CORN PRODUCTS SALES CO.
17 BATTERY PLACE
NEW YORK CITY

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o .b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	4.75	"	5.00
Domestic	4.50	"	4.75
Jute Threads.....	2.62½	"	2.75
Sisal Strings.....	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	"	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book...	.80	"	.85
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.70	"	1.75
Ledger Stock Colored	1.30	"	1.40
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.40	"	1.50
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.52½	"	.57½
Corrugated	.47½	"	.52½
No. 1 Mixed Paper..	.27½	"	.32½

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18	@	—
White Hemp.....	.18	"	—
Fine Polished—			
Fine India.....	.22	"	—
Unpolished—			
Box	.16	"	—
Paper Makers.....	.13	"	—
Tube Rope.....	.14¾	"	—
Wall Paper.....	.16	"	—
Wrapping	.16	"	—
Soft Fiber Rope...	.14	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.10	"	—
Mex. Sisal.....	.09½	"	—
Manila	.23	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached...	.06	"	.06¼
Washable Prints...	.02¾	"	.02½
Washable, No. 1..	—	"	.01½
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01½
Fancy Percales....	—	"	.03
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.03¾
No. 2 Mixed.....	.01¾	"	.02
Corduroy	.01¾	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1...	1.10	"	1.15
Domestic No. 2...	.95	"	1.00
Roofing Bagging..	.85	"	.90

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	2.25	@	2.50
Manila Rope.....	—	"	5.00
Sisal Rope.....	2.00	"	2.25
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.25	"	2.50
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.75	"	4.00
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	2.25	"	2.50

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.40	@	2.50
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	1.90	"	2.00
No. 2 Soft White	1.60	"	1.75
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.50	"	1.60
Ledger Stock, colored	1.10	"	1.15
No. 1 Books, heavy..	.80	"	.85
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.50	"	.55
Container Manila....	.40	"	.45
Kraft Paper.....	1.25	"	1.30
No. 1 Mixed Paper..	.25	"	.30
Straw Board Chip...	.30	"	.35
Binders Board Chip..	.30	"	.35
Corrugated Board...	.50	"	.60
Overissue News.....	.70	"	.75
Old Newspapers.....	.50	"	.55

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.00
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed.....	.75	"	.90
Solid Ledger Books..	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Mixed Ledgers.....	1.50	"	1.75
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	.75	"	.85
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings extra quality	2.35	"	2.60
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.25	"	1.30
Extra No. 1 Kraft...	1.00	"	1.65
Mixed Papers.....			
Print Manila.....	.55	"	.60
Container Manila...	.60	"	.70
Old Newspapers.....	.50	"	.55
Paper Wool Strings.	.95	"	1.10
Overissue News.....	1.00	"	1.10
Box Board Chips....	.40	"	.45
Corrugated Boxes...	.55	"	.60
Kraft corrugated boxes	.90	"	1.00
New Kraft Corrugated Cuttings	1.45	"	1.60
Screening Wrappers.	.70	"	.80

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	2.70	"	—
Domestic	2.25	"	2.40
Sisal Rope.....	2.25	"	2.50
Mixed Rope.....	.85	"	1.00
Transmission Rope—			
Foreign	—	"	2.40
Domestic	2.00	"	2.25
Soft Jute Rope.....	3.25	"	3.50
Manila Rope—			
Foreign	5.00	"	5.25
Domestic	4.75	"	5.00
Jute Carpet Threads	2.00	"	2.25
Bleachery Burlap....	4.00	"	3.25
Scrap Burlap—			
Foreign	2.35	"	2.50
Domestic	2.15	"	2.35
Scrap Sisal.....	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares—			
Foreign, Heavy...	2.40	"	2.50
Domestic	2.40	"	2.50
Aust. Wool Pouches.	2.75	"	3.00
New Burlap Cuttings	3.75	"	4.00
Heavy baling bagging	2.75	"	3.00
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.06¾	"	.07
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	—	"	.06½
Underwear Cutters, Bleached	—	"	.06½
Silesias No. 1	.05	"	—
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¾	"	.03
New Black. Soft..	.03	"	.03¼
Khaki Cuttings....	.02½	"	.03
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.02¾	"	.03
New Canvas.....	.06¾	"	.07¼
B. V. D. Cuttings...	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	2.00	"	2.25
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—	1.50	"	1.75
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.30
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....	(nominal)		
Dutch Blues.....	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians.....	(nominal)		
Old Linsey Garments.	(nominal)		
New Silesias.....	(nominal)		

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings....	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.10
Blanks	1.50	"	1.60
Krafts	1.40	"	1.50
New Kraft Cuts.....	1.60	"	1.75
Overissue News.....	1.00	"	1.10
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90

Discuss Certificate Plan

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 9, 1940—Robert H. Ziegler, assistant secretary of the National Paper Trade Association of the United States, discussed in detail the Certification Plan for Wrapping Papers at a meeting of the New England Paper Merchants Association, held at the Parker House Wednesday evening. John F. Blackman, president of the association, was in the chair, with 25 present.

A nominating committee was selected to submit names of officers and board of directors, candidates to be voted on at the annual meeting, as follows:

Frank H. Winter, Carter Rice & Co., Corporation; Matthew O. Brynes, Whitney Brothers, Inc., and W. Edwin Porter, Jr., Cook-Vivian Company.

Gilbert T. Singleton, vice-president of the association in charge of the Wrapping Paper Division, showed interesting moving pictures in two reels from the Massachusetts Institute of Technology, of high speed photography and one reel depicting the Battle and Fall of France.

Paper Man Ordered to Service

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 9, 1940—Ormond Freile, vice-president of Paper Merchants, Inc., a past president of the Philadelphia Paper Trade Association, and a senior lieutenant in the United States Navy Reserve, was ordered into active service on October 15 as Liason Officer for the Navy on the Army and Navy Munitions Board. Mr. Freile served in the World War, and was decorated with the Croix de Guerre, French Verdun Medale Militaire and Order of Purple Heart. His headquarters are Room 2004, Munitions Building, Washington, D. C.